No 54 — April/May, 1987 $2.75

EARTH GARDEN

Alternative festivals in southern Australia

12 volt solar lighting and appliances

Build your own chick brooder

English 19th Century model farm

Heating your home with a 44 gallon drum kit

(Almost) year round tomatoes

Inverters for 240 volt appliances for solar systems

Earth mother's post partum blues

Risks with boring for underground water supplies

Land lines, classifieds, access, people and places.

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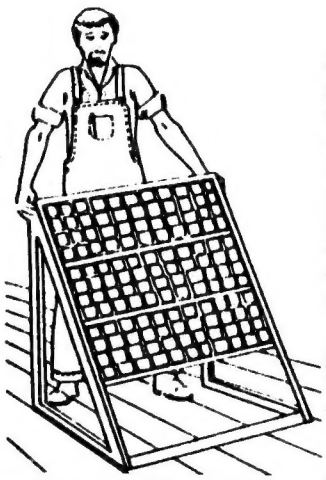
EARTH GARDEN BOOKS



ENERGY WORKS!
Home Energy Systems
By Keith Smith

Nelson, Melbourne, 1985, large format paperback, 211 pages, illustrated. ☐ $19.95 posted.

Why spend the rest of your life paying someone else for your electricity? Here's how to plug in the renewable energy of the sun, wind or water using an efficient 12V or 240V solar electric system, wind generator or water turbine. Run lights, radio, TV, computers, tools and appliances wherever you live.

"The major part of this book is devoted to practical issues, hardware and actual installations.

". . . This book should appeal to anyone wth an interest in the supply of energy to weekenders, farms or other remote dwellings or even to the suburban household." — Dr C. J. L. Cornish of Murdoch University, WA, in *APACE WA Newletter.*

The Settler's Guide
Old time skills and bush lore
Compiled by Keith Smith

Nelson, 1983 (second printing), large format paperback, 176 pages, illustrated. ☐ $15.95 posted.

Pioneer a bush block from 'go' to 'whoa'. How to clear, fence, square a gatepost, whitewash, build a slab hut, a rammed earth house or a timber windpump with hand tools. Harness horses and select, sharpen and care for bush and bench tools like axes, adzes, planes, crosscut saws, mauls and scythes. Tried and true advice from *The Agricultural Gazette* of NSW, 1890-1910.

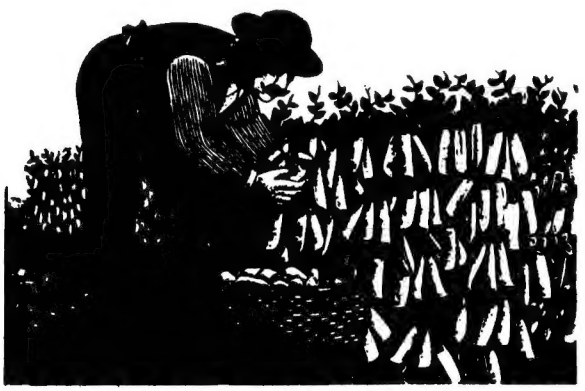
Third Earth Garden Book

Edited by Keith & Irene Smith.

Nelson, 1981, large format paperback, 256 pages, illustrated. ☐ Special $5.50 posted.

A collection of practical, original, human-scale methods for providing the essentials of life, with stories from New Settlers on farms and communities all around Australia.

The Third EG Book tells you how to build fences, gates, a concrete water tank, plastic greenhouse, Coolgardie safe and compost privy; how to spin and weave, make rugs, dilly bags or baskets; how to build your house from earth, stone or timber; how to raise coloured sheep, freshwater fish or yabbies, or grow permanent tree crops and protein-rich legume crops.



HARD TIMES HANDBOOK
Survive — and thrive!
Keith & Irene Smith

Nelson, 1986, 204 pages, 70 illustrations. ☐ $8.50 posted.

This is the second, corrected edition of our practical book of skills, strategies and short-cuts for urban survival. HARD TIMES HANDBOOK outlines a new, self-reliant approach to city living. It tells you how to do more with less, be prepared for food shortages and emergencies, save energy, make money without a job and manage your food supply. Make bread, yoghurt, soft cheese, candles and soap. There are 150 recipes for cheap, healthy tucker and 180 money-saving household hints.

Founded by Keith & Irene Smith, 1972.

Earth Garden is the original Australian journal of self reliance. It is intended as a forum of practical ideas, shared knowledge, sources and alternatives.
It's about putting a roof over your head, growing your own food, using alternative energy and surviving — and thriving — in the city or the bush and the inner changes which follow when you are in tune with nature.

Published and edited by Camille and Alan Thomas.

Illustrations by Bronwyn Halls

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For subscription details — see page 40.

We welcome advertisements appropriate to the aims and ideals of Earth Garden, but reserve the right to refuse ads at our discretion. Send SAE for display rates.

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EARTH GARDEN 54

The cover

Front: Shropshire 'heavy' horses make light work of ploughing. The enchanting beauty of this little rainbow child at the Down To Earth Confest speaks of recurring themes at Confests: peace and happiness.
Back: Rainbow flags for world peace.

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Dear readers,

With one issue under our belts and the shoe boxes of subscribers' information safely tucked away in a corner of our cluttered office, we are starting to feel at home producing *Earth Garden*. When we put our first issue together we spent ten days working solidly until 3:30 am and then getting up at 7:30 and starting again. We misjudged our run slightly, through inexperience, but preparing this issue has been a bit less lunatic.

The 'spare' room in our old house carries the title of 'office' and is where contributions are edited, stamps are licked and copy is lost (along with the accompanying piles of torn out hair). Everything but the back copies of EG is piled into the office — the back copies live in a hastily converted bungalow in the backyard. That is, a small percentage of the back copies: there's another four tons or so in Keith and Irene's backyard in Sydney. We haven't yet managed to work out how to transport them 600 miles to Melbourne without going into debt for the rest of our lives.

One point about our house was overlooked in EG 53. Due to an overabundance of midnight oil and a lack of sleep, we forgot to put a byline on the story about conveyancing. (The story was by us.)

Congratulations are in order for one of EG's regular contributors. Sophie Masson and partner David's second child was recently born in their little town of Guyra, near Armidale in New South Wales. In EG 55 Sophie shares with us their Trojan efforts in restoring their little home to a habitable state. Sometimes it's encouraging just hearing of other people who've started with an uninhabitable dwelling and are working towards making it a comfortable home. It's reassuring to know that other people are as mad as you were when you started that operation yourself. Although it's usually an incredible grind it's also a valuable means of recycling and extending the life of materials and resources.

Speaking of regular contributors, Greg Baker has recently been involved in a wonderful discovery. Greg's friend Robin Jean (who drew the illustrations for Greg's article on chaff cutters in EG 53) has discovered a previously unknown and unrecorded eucalypt, near their hometown of Braidwood, an old gold mining town east of Canberra.

The Australian newspaper recently ran the story of this remarkable find and we will try to prepare a story for the next issue.

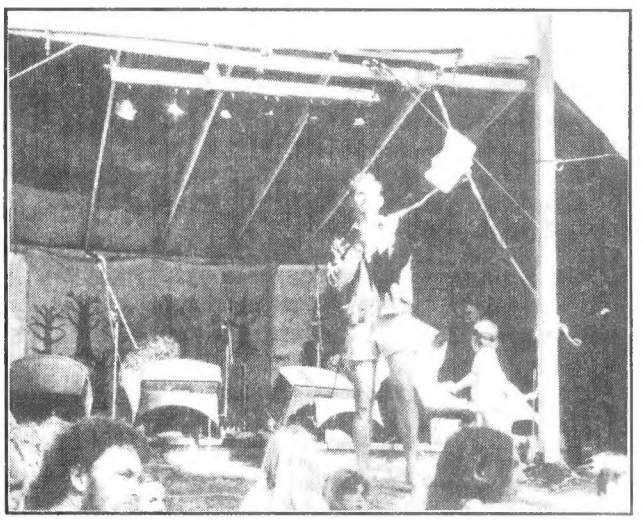
Recently we were talking with a reader to check some details on a land line advertisement. She told us that the previous time her name and address had appeared in an ad in EG she had been sent advertising catalogues and flyers from an American-based mail order company.

There is nothing wrong with ethically-operated mail order businesses but, like Keith and Irene, we feel very protective towards our readers when it comes to unsolicited junk mail. Keith and Irene always, as we do, give short change to companies wanting to buy EG mailing lists. If any other readers receive unsolicited junk mail which they suspect came from their address appearing in EG we would like to know so we can stop such unethical behaviour.

Over the next few months we will be concentrating on acting on suggestions from you on the types of articles you would like to see in EG. We enjoy getting letters from you with suggestions and constructive criticism — it means we should be able to bring you a better EG.

Yours in peace,

Camilla & Alan



The Wilderness Society of Tasmania held a weekend Forest Festival at the start of February in the Apsley valley, near Bicheno on the east coast of Tasmania. Over 700 people turned up for the festival, which was held close to the proposed Douglas-Apsley National Park, the largest area of unlogged and unburnt schlerophyll forest left in Tasmania. Speakers included Democrat Senator, Norm Sanders, and Bob Brown (pictured above) who seemed far more at home in this clobber than in the appearance he usually has to put on for the media.

Dear Editor,

I am looking forward to your taking over of Earth Garden with much interest. I would like to see incorporated into the magazine more interviews, (articles), on successful self-sufficiency operations and also more articles on organic gardening.

Bruce Charles, Goulburn, NSW.

Dear Editors,

I have just read with great interest and enjoyment the November issue of Earth Garden. In particular I was most interested in the article on pages 20-22 on earth worms.

I have only recently moved to Adelaide, and find the soil in our garden very poor. It is essentially very thin topsoil over rock, and what there is of it is largely clay.

In an attempt to improve the situation, I have spread a considerable amount of mushroom compost all over the garden. From the appearance of the plants, I think it has helped but I would also like to try to boost the worm population — to date I do not think that I have come across *one* in the garden.

The main purpose then of this letter, apart from wishing to say how I enjoyed the magazine, is to ask if you can put me in touch with a source of good earth worms. I gather from the article mentioned above, that people farm them commercially. Do you have some names and addresses please?

W A HAWKER, Wattle Park, SA.

Earth worms can be shipped interstate if you can find no suitable worm farms in South Australia. Problems with transportation are that they can die if the weather is hot. Try your phone book first, if that's no good then you might try sporting stores which sell earth worms for fishing and enquire who their supplier is. A worm farm called Tildabrook Worm Farm in Caparra, NSW, [ph (065) 50 7276] is owned by Earth Garden *readers — see also the worm farm add in this issue.*

—Camille.

Dear Alan and Camille,

I would greatly appreciate, with the emphasis on 'greatly', any help you would be able to give me on the following matter.

Although to-date my life has followed a pretty typical pattern of accepting the mores of a society based on the 'collective wisdom of individual ignorance', I've become increasingly discontent with this existence and for sometime have been looking at the alternatives.

With a mind opened at an early age by my father who has studied an amazing and fantastic array of human philosophies, I have glimpsed a golden thread that links them all and is perhaps best embodied by the Zen ideal of 'warmth, food, shelter and all else is vanity'.

To follow this ideal it has been my plan to secure a block of property with the right characteristics to help ensure my success in the venture of a self-sufficient farm. After looking at many properties it has become clear to me that I don't really know what those right characteristics are. Do I need a permanent creek, or even a river? How many hectares would be needed to provide subsistence self-sufficiency? What type of soil is best — well drained granite for fruit trees, or rich basalt for vegetables?

And once these are answered, what about all the questions as to what really needs to be grown and what else is needed for healthy living? When answering these questions it needs to be kept in mind that I'm only interested in subsistence living and as such my only money would come from a reserve established over the next ten years (the approximate time I've allowed before I completely set up and move onto the place).

While pondering these many problems it occurred to me that instead of virtually guessing the answers there must be others who have followed a similar path and are therefore a valuable source of knowledge. This then is the crux of the lengthy prelude, and I would be indebted to you for any leads you could provide including book titles, societies, or perhaps some of your corresponding readers.

Of course if you yourself have any thoughts on the matter I am all ears. Thanking you for your time.

John Hill, 14 Redmill Close, Cheltenham, NSW, 2119.

Dear John — some suggested reading is Permaculture One *and* Permaculture Two, *by Bill Mollison, Keith's* Early Settler's Guide, *Earth Garden's 1 to 53 and statistical information for districts from the Met. Bureau. This is a very basic start, the library of books in the area is obviously enormous. Second Back Row Press publishers,*

PO Box 43, Leura 2780, have recently published an excellent resource guide called The Australian Small Farm's Handbook. *Good luck.*
—Alan.

Dear Alan & Camille,

Congratulations on taking over from Keith & Irene with Earth Garden.

I only just started enjoying the fruits of country life five years ago when I moved out of the Sydney RAT-RACE to the quiet plassitude of Queanbeyan.

I met Maria about 3 & 1/2 years ago and about two years ago she was able to purchase the property behind mine, making a 'T' shaped property between two streets near the centre of Queanbeyan.

My house is over 100 years old and I am slowly replacing the old timbers and foundations whilst we build a studio, foundry, duckpond (with windmill), a family and draw ever-increasingly weird glances from the neighbours, but they are starting to enjoy us when they look slightly sideways!

Andrew Cole, Queanbeyan, NSW.

Dear Editors,

Three hearty cheers. I had resigned myself to no more Earth Gardens and am delighted to find it lives . . . Now here is a good question for you and readers to start your venture off.

I have studied the subject of fresh water fish farming extensively and in all my reading have never found the answer to the question: Which gives better results, stocking a new dam with a lot of fingerlings or a few mature fish and allowing them to breed?

John Guest, PO Box 301, Coonamble, NSW, 2829.

Dear Keith and Irene,

I have just obtained my first copy of Earth Garden and I would like to congratulate you on an excellent magazine. With best wishes,

John Baird, Belgrave, VIC.

Dear Earth Garden,

I very much enjoy reading your journal.

The November issue featured an article on 'A Wetback Chimney'. I didn't see any reference to steam vents — a matter of some importance.

Some months ago, several people were killed or injured when a home-made hot water system exploded in a football change room in a small town of Western Australia. Apparently the hot water tank lacked a steam vent resulting in a fatal build-up of pressure.

Anyone contemplating constructing a similar hot water system should include appropriate safety features.

John Slau, Shenton Park, WA.

Dear Earth Garden readers,

We hope we can find someone who can help us. We are a young couple (24 & 25 years) and are very interested in all farming, gardening and building matters as we are planning our lives in this direction. We haven't got much experience in self-sufficiency but we are both hard workers, all-round talents, and very keen on learning.

We thought about an exchange of food and accommodation against our work. (Accommodation is not a necessity as we have a station wagon to sleep in).

If you need help on your farm in northern NSW or QLD for about five or six months (more or less possible) and if you are willing to give us a chance to learn please contact us before May. We look forward to hearing from anyone.

W Burger, C/— GPO, Sydney.

Greetings people,

The inhabitants of Wytaliba, a community east of Glen Innes, wish to inform interested individuals that shares are still available in this rambling 4,000 acres of rivers and mountains.

But our main asset is people, and we welcome new community-minded people into our midst. Living on shared land with approximately 100 other people is a big personal responsibility and a lot of hard work.

Since the first residents moved on in 1980, the social environment has been in constant flux as we each seek to interpret and implement our lives here.

If you feel you have a willingness to communicate, co-operate, make intelligent compromise, and you have the energy and commitment to meet this challenge, then we have a place for you. Joining fee is $1000. Interested people can write to us:

Wendy Coates, Mandy Beetham, Wytaliba via Glen Innes, NSW, 2370.

Dear Keith & Irene,

My wife and I think Earth Garden is a great magazine. We are both retired, both is our early 40s. My wife Patricia runs a catering business and I just finished working for the Queensland Government, a thankless job. I hold certificates in farm engineering, animal husbandry, pest control, steam engineering, horticulture, and welding. I also write about and breed Australian birds and grow native trees and shrubs.

Many articles and letters in Earth Garden we have found very interesting. At the end of the year around December-January, we intend to go bush and set up a community farm with shares hopefully in a quiet area of the range area of the north east of NSW, with no idiots around. What we have in mind is about 100 acres and 8 or 9 other couples aged between 18-45, who are interested in a quiet life living in the bush in cabin style buildings. Very little capital is required to start off these community style farms away from the city. My wife and I would be interested in corresponding with other readers of Earth Garden interested in this idea. Keep up the good work it's a great magazine.

P & D Olive, 10 Adonis St, Mala, Qld, 4077.

Dear Irene and Keith,

When I moved to the city, I found myself the owner of two enormous apricot trees. I was shown how to sulphur the fruit, and

thereafter, every morning while the season was in progress, I would take a deep breath, throw back the sulphur tent and wait for the fumes to dissipate. I would then hand the trays of fruit to my son, who put them on the porch roof to dry. Since it was the only flat roof in the place, it lent itself ideally for drying out the fruit.

I used to climb up on a ladder every afternoon to pick off the dried fruit. Leaning over the hot iron roof the temperature would be anything up to 120°.

I have since read articles on the disadvantages of sulphur to the human body, and have tried drying the fruit using the sun only. The fruit went slightly tougher but tasted fine. This year, however, the apricots turned black and hard and were no good at all.

Can any reader tell me how to dry apricots without chemicals and still have a reasonably presentable article as the finished product?

Helen Eglinton,18 Wootton St, Elizabeth West, SA, 5113.

Dear Helen,

A solar fruit dryer seems the obvious answer and I'm sure EG readers can tell you of their experiences with them.

—Alan.

Dear Earth Garden readers,

The book *Life After Cancer* is now available. Special EG readers price is $1.95 postage paid. Normal retail is $3.95 plus postage. We have just received stock from the USA. We thought the value of this book is worth distribution at cost to EG readers. If you would like to order please mention that you are Earth Garden readers and write to:

Kevin Rogers, Australian Retsel Distributors, PO Box 712, Dandenong, VIC, 3175.

Dear Sir/Madam,

I am writing to enquire if you could please send me any information on log cabin homes. Thankyou,

Mrs Hollingsworth, Rockhampton, QLD, 4700.

We have had quite a few inquiries about log cabins. There are articles on log cabins in back issues of Earth Garden 22-23, 31, 32 and 33.

—Camille.

Dear Earth Garden readers,

I am hoping that someone can help me. I have just returned to Adelaide (after travelling for a number of years) with my husband, who is from Lamu, Kenya. I am finding it very hard to settle and miss the company of travellers and like-minded folk. I am really keen to introduce my husband to alternative lifestyling and the people who are associated with this type of life, but all my contacts are roaming the world and I have come to a real dead end. If you live within a reasonable day trip distance of Adelaide (we have transport) and can help, please contact me. Thankyou. Good luck to you, Camille and Alan with Earth Garden, now I will be able to read every issue! Regards,

Pamela Newport, 1/527 Lower North East Road, Campbelltown, SA 5074, ph (08) 337 8684.

Dear Alan, Camille and Tane,

I do hope you all have a very successful time as the publishers and editors of Earth Garden.

We are still waiting for good summer rain to relieve the drought conditions in Central Western Queensland. There has been very good but patchy falls in our district. Since 1982 rain has changed from summer to winter rain and our Mitchell grass does better on summer falls — but we live in hope. With kind regards,

Patricia Shannon, Rodney Downs, Ilfracombe, QLD 4727.

Dear Camille and Alan,

It was sad to farewell Irene and Keith but most gratifying to know they have found someone to replace them with whom they have such faith. Good luck to both of you and thank you for having the courage to take on such a big family and keep us together. A big welcome.

Chelmer Roots, Biloela, QLD 4715.

Dear Earth Garden,

I have just received my first copy of Earth Garden on my subscription for 87 and would like to thank you for a great first issue.

I was delighted to read of the RRTF project and will certainly be sending for more information. I really enjoyed the article on solar refrigeration. Looking forward to a long editor-reader relationship. All the best with your new venture.

Thanking you,

R B Cole, Loganholme, QLD 4129.

Dear Alan and Camille,

We're reallly glad you're taking over Earth Garden. Hope it continues in the same vein.

Lots of luck.

Jane & Tony, Liesl & Rachel, Ulverstone, TAS 7315.

It's nice to hear from some Tasmanian readers!

—Camille & Alan.

Dear Camille & Alan,

Thank you for sending us the February edition — I didn't realise EG was still going. Good luck with the venture — we enjoyed EG 53 very much. My husband's two key interests are Clydesdales and Land Rovers, so that's a double-barrel lottery for him! Thank you.

Lee Gilliard, Missabotti via Bowraville, NSW 2449.

Dear Sir/Madam,

I am looking for any information on donkeys, and especially on the use of donkeys as pack animals. I noticed in an earlier copy of Earth Garden that some of your back issues contain articles on donkeys.

Would you be so kind as to inform me of which issues have made reference to donkeys (and very briefly what the articles were about), the price of each back issue and postage.

Many thanks, I look forward to hearing from you, and readers.

Vicki Gall, c/- Post Office, Alice Springs, NT 5750.

Dear Vicki,

Back issue EG 41 page 32, has an article on donkeys used as pack animals. There are other articles on donkeys in back issues EG 43 pages 45 and 46 and EG 47 pages 19 and 20. EG 43 shows donkeys being used to pull a cultivator. Back issues cost $2.75 including postage.

—Camille.

Dear Camille & Alan,

I am very pleased to know that EG will continue to spread the views of down-to-earth people around Australia. I too realise the need for us to remain in tune with nature, and Alcheringa, a privately managed wildlife reserve, and future camping area planned, is a non commercial experiment, allowing many people a chance to be close to nature.

Maybe in the winter I will write you a story on Alcheringa as it is based on self-sufficiency in close company with nature on a communal basis.

Regards,

Stephen Rhodes, Alcheringa Wildlife Reserve, PO Box 120, Whitemark, Flinders Island 7255.

Dear Sir,

I am currently involved in a battle with mining companies who propose to reintroduce dredging into the Ovens Valley in Victoria, between Freeburgh and Harrietville, right at the approach to the alpine area under the shadow of Mt Feathertop. (That's the mountain with the point at the top of it, the only one we have in our country!)

The 'Concerned Citizens Committee' have been successful in Bright Shire adopting changes they proposed in the local planning scheme to prohibit dredging of the valley floor and the use of educator dredges in the streams. However we have a long way to go yet.

The whole area, as you probably know, is heavily scarred with the marks of previous dredgers who took all and gave nothing.

Coming from our meeting with Council, a companion showed me his copy of Earth Garden 52, November 1986, which contained The Eleventh Commandment as quoted by Walter Lowdermilk.

These words express the thoughts of one particular 'farmer' councillor who was most vocal on our behalf and are an inspiration to us all. Thank you for your publication. I can see a time when I would want to quote the Eleventh Commandment, with due acknowledgement to 'Earth Garden' of course; are there any problems? Please advise me. Congratulations on your stimulating magazine.

Yours faithfully,

Geoff Luscombe, Strathmore, Victoria 3041.

Dear Geoff,

We are sure that all Earth Garden readers know the sense of outrage and frustration of hearing of unnecessary mining, clearfelling or river damming operations continually perpetrated against our fragile environment. The only way to redirect 'progress' is what you are doing: direct action.

—Alan & Camille.

Dear Alan & Camille,

Welcome, and enclosed subscription is a show of faith that you are keeping up the ideals of EG. It is good to see also that Victoria is now the home of the two best magazines and mouthpieces of Grass Roots Earth Gardeners. May you continue to complement each other and be a common link for all seeking or pursuing a better, simpler lifestyle. Again, good luck and fortune for the future for both you and EG.

Robert Knight, Victoria.

Dear Earth Garden,

We're pleased to see you will be publishing bi-monthly as three months is always a little too long between issues. We would be happy also, to see you get back to more stories from other people and practical advice rather than things like philosophy and reviews and interviews.

Looking forward to the rest of the year with you.

Karen & Neal Venables, Springwood, QLD 4127.

Dear Earth Garden,

After 25 wonderful years of marriage and living on stations and raising three lovely children, (now off our hands) we are right in the throes of shifting into our own home for the first time. We have 3 1/2 acres right on the edge of town; we bought an old house and had it shifted from Narromine to Trangie and boy! what a time. The toilet will be connected next week (hopefully) after a long wait. Needless to say money is tight as we are doing this on a shoestring. I wish EG all the best and when we finally get sorted out we should be able to renew our subscription.

Yours sincerely,

Grace Martin, Trangie, NSW 2823.

Dear Friends,

Having recently returned from my journey 'through the desert on a horse with no name' I'd like to start reading your magazine again.

Yours,

F J Hupp, South Penrith, NSW 2750.

Dear Earth Garden,

We shall be living here in Papua New Guinea for the next two years and will greatly appreciate having access to your wonderful magazine.

Yours sincerely,

Michelle & John Rayner, Milne Bay Province, Papua New Guinea.

Dear EG,

I read with pleasure Ty Tower's article on Land Rovers in the February issue of your magazine. Thank you for forwarding the enclosed letter to him. Both I and a friend live on a co-operative farm reasonably close to Ty and we are looking for a good quality used Land Rover. Thanks a lot.

Phil Jefferson, Two Waters Farm, Tabulam, NSW 2470.

BEATING THE HOT DRUM

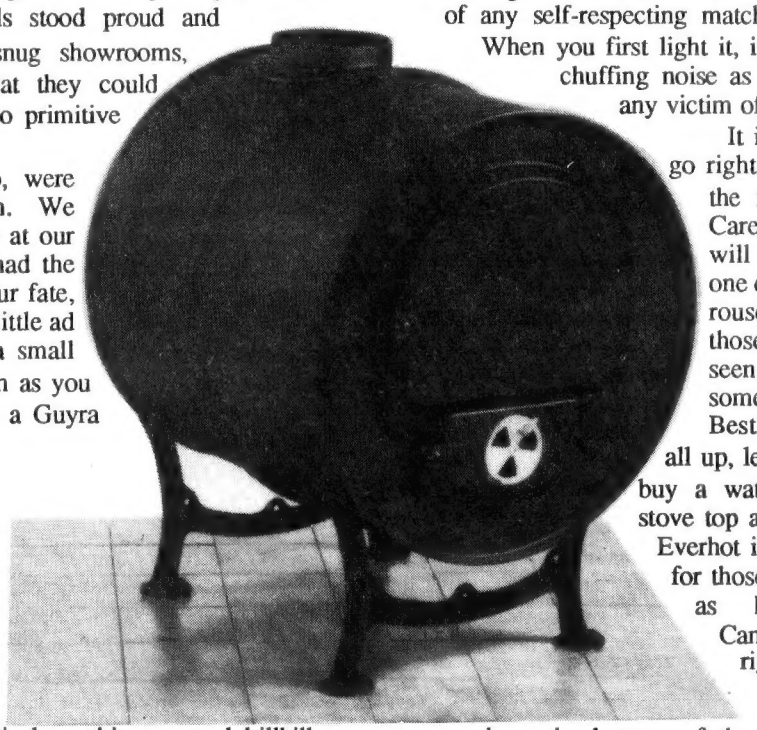
by Sophie Masson
Guyra, New South Wales.

Winter will soon be upon us, to many people's dismay. Bare branches and thick woollies will soon be a common sight in many parts of the country. In our lives it means time to stoke up our Hot Drum.

Last winter we bought our own little patch of basalt earth, complete with a 'renovator's dream' of a house high on the topmost of the Great Dividing Range in the New England tablelands. Our winters here are *real* winters: snow, heavy frosts, and worst of all, a blustery southwesterly that penetrates even the thickest woolly. Not a place for the fainthearted — or those without heating in their homes.

Our house only had an open fireplace; open, that is, to all the winds of heaven and those of hell as well. We started seriously patronising the heating shops, where gleaming high-tech marvels stood proud and aloof in the middle of snug showrooms, daring you to imagine that they could possibly run on anything so primitive and messy as wood.

The price tags, too, were enough to make us blanch. We began to look more kindly at our open fire, but before we had the chance to be resigned to our fate, we came across an offbeat little ad which promised, that for a small sum, you could be as warm as you wanted all winter — even a Guyra winter.



And what was it advertising? Something called a 'Hot Drum', which believe it or not, got its name from its parent — a 44 gallon drum, the very kind your super and oil come in. We spoke to friends about this: they were sceptical — this was real hillbilly stuff — can you imagine it? A dirty old 44 gallon drum in your living room!

But we persisted, and wrote off to the enthusiastic marketer of the Hot Drum kit, one John Gilpin, a Canadian resident in Queensland who first came across the idea in his native country. Winters in Canada are very cold; colder even than Guyra's. And the canny Canadians use 44 gallon drums to heat themselves — but not just plonked on their end in the middle of the floor, *a la* backyard incinerator, but on their side, cut down, complete with cast iron door, firedoor, legs, and with a nice flue. Painted black, these little heaters have a slightly oldfashioned look, and certainly for any décor you may care to mention — but especially the country cottage look.

You can order the complete, made-up drum for about $170, but if you're brave, like we are, you can simply order the kit, all the cast iron odds and ends, find a drum, and construct your own Hot Drum. It is not a task for the fainthearted. It took my partner the best part of a weekend (and then some) to clean the drum, cut it down, cut openings, bolt the thing together, spray it in firepaint, fit the flue, make a cap for the chimney, and a plate.

However, the effect was worth all the curses and the sweat - for joy of joys, instead of crouching miserably like medieval villains by the sputtering open fire, we can walk around the entire house in total comfort, as warm in the kitchen as in the living room, as cosy in the bedroom as in front of the roaring inferno — or almost! It is a dream to light — even I, who seems to dampen the ardour of any self-respecting match, can light it first go. When you first light it, it makes such a roaring, chuffing noise as is balm to the soul of any victim of a southwesterly.

It is so airtight that it will go right out if you close down the firedoor and the vents. Carefully controlled, a fire will keep going all night on one decent-sized log. And it rouses the admiration of all those of our friends who'd seen it, after imagining it as some sort of rubbish burner. Best of all, it has cost us, all up, less than $200. You can buy a water heating coil and a stove top as well, but we have an Everhot in the kitchen and use it for those sort of things. As far as heating goes, those Canadians sure have it right.

One tip is not to let the ash accumulate too much at the bottom of the heater. Although you need some ash to make a good bed, too much will smother the fire. Because it burns so hot, the ash is very fine and grey — totally pulverised, and it makes an effective blanket for the flames. It needs emptying about once a fortnight and your garden, of course, will love it.

We're looking forward to a snug, cosy winter this year — and even now, as autumn nights prove unexpectedly nippy, we can cope perfectly well, with the good old Hot Drum.

When we make our big move 'back to our land' next year, a Hot Drum from John Gilpin will be high on our list of priorities.

— Camille & Alan.

BORING! BORING! BORING!

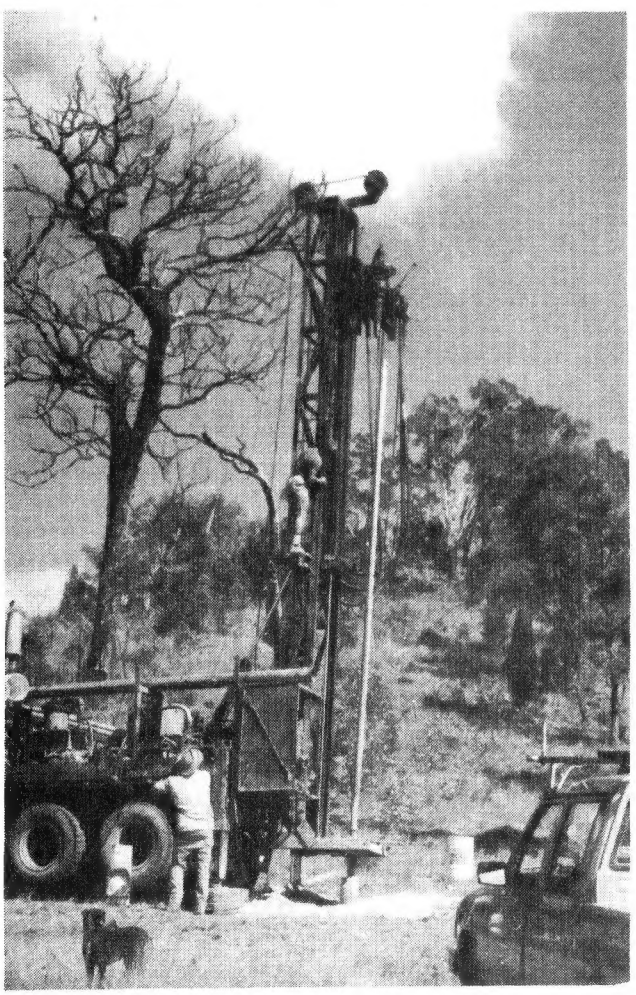
Invisible water supplies can also hide problems

by Chris and Rhonda Martin
Coonabarabran, New South Wales.

Q. What expels $10 notes from a hole in the ground faster than you can feed them in?
A. A drilling rig boring an empty hole.

A regular water supply is a prime requirement for successful alternative living. Even using mulching or trickle irrigation a poor supply can be like a chook scratching in the dust. The average rainfall in our area is about 1000 mm but varies from 500 to 1500 mm and in these conditions our dam goes up and down like a yo-yo.

Our neighbour, using a percussion drilling rig, hit water at 5 metres, bottoming out at 10 metres. So why not the same luck for us? Out came the water diviner and the local drilling contractor and they decided on a likely spot. It appeared to be on the same north-south line as the neighbour's bore so we rubbed our hands in the expectation of a cheap water supply.



The rotary drilling rig in action.

A few weeks later we were startled out of our peaceful existence by a monstrous apparition at our gate. It wasn't the little percussion rig but a very large rotary air rig. Down we went to the chosen site and asked our 'local bloke' for an explanation. He said that a percussion rig is only designed for soft to medium rock and bores the hole by banging away like a hammer on a punch. Our area contains the remnants of extinct volcanoes and some of the rock is very hard — therefore, we needed the rotary air rig which turns and hammers at a much faster rate. The price was the same, $27 per metre empty and $54 per metre for a successful bore lined with plastic casing.

"What do you mean, empty bore, and why plastic instead of steel casing," we enquired. He explained that plastic was better than steel because it did not corrode so it was used in most areas where there was no likelihood of shifting ground.

Some operators work on a no-water, no-pay basis but charge $75 per metre for a successful hole. The dam was looking decidedly empty so we went ahead.

10 metres down — what, no water?

20 metres down — wet sand. Everyone was looking smug but it turned dry again. This happened three more times before we stopped at 30 metres, the limit of our economic resources and the limit that water could be pumped using low cost alternative energy methods.

Why did our neighbour get water at 5 metres and on the same line we could not get it at 30 metres? We had all forgotten that the volcanic activity thrusting up through the sedimentary rocks underneath had drastically altered the direction and depth of the underground reservoir.

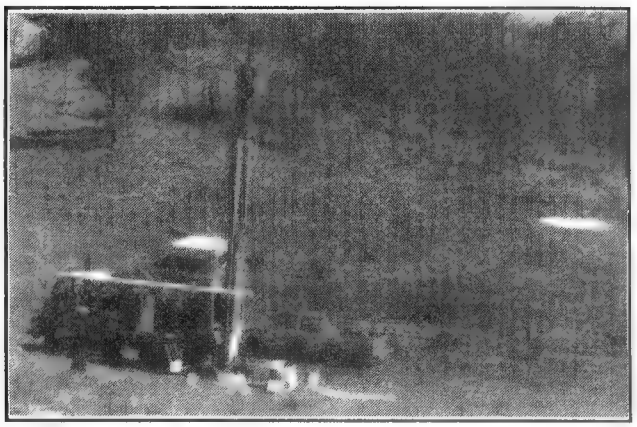
We were not happy about blowing $1000 and the local water boring contractor wasn't happy about losing his reputation. He therefore offered us a no-water, no-pay deal and half price for a successful drilling. (Rhonda insists it was because he felt sorry for us as she stood looking so downcast with her big toe sticking out of her sand shoe.)

The second attempt only produced 50 litres per hour so he finally went closer to the neighbour's bore with the help of another neighbour's tractor. Bingo! Struck water at 2 metres and stopped boring at 5 metres.

The odd thing is that it was a different stream to our neighbour's — our water is good but heavy in iron content while his has none at all. Because the bore is above the dam it even gravity feeds down to it. Sometimes clouds do have a silver lining because the money we lost on the first bore has been saved by our not having to equip the third and successful one.

In our area water bores are definitely chancey with only a 50 percent success rate. One neighbour went down

Chris and Rhonda's dam at its lowest level in May of 1985, just before the bore was successfully sunk.



The percussion drilling rig was used for the second attempt. The patch of white earth to the right is the site of the first bore hole.

70 metres and still did not find water. The quality of the water can also vary: bores sunk within a five metre radius of our land have varied from useable for household water through to being very heavy in iron content. In fact, we know of one hole that smelled like a dead cow and had to be sealed up.

The underground water table is directly affected by the number of people drawing from it. Our local town has a guaranteed supply at 15 to 20 metres but bores on the slopes above this valley floor run out and take longer to recover when town water restrictions apply. If you have a bore make sure you use water from it regularly, say once a month. If you don't you risk the many capillaries feeding the bore becoming blocked with silt and tree roots.

The best water is the water you can see. A large dam, permanent creek of spring is a far better bet than boring for water.

Action at Acton, without the fumes

by Sophie Masson
Guyra, New South Wales.

Among the green hills and quiet hedged lanes of England's most rural county, Shropshire, lies a unique experiment with tradition. It is the Acton Scott Working Farm Museum, a working reconstruction — established ten years ago — of a Shropshire upland farm, set in the days before the petrol engine.

Acton Scott's 22 acres spread out over beautiful fertile ground. The farm used to be part of the Acton Scott manor holdings — the old manor, or Hall, still stands. The farm works with Shire horses and skilled workers and demonstrates 19th Century arable techniques. It is stocked as a mixed farm of that period and includes horses, cows, sheep, pigs and poultry of breeds rarely seen today.

We went there in the English autumn of 1984, a particularly beautiful, poignant season. The civilised green landscape with its beech and oak trees fluffing out their leaves, its shady duck and geese ponds and its hazy quiet make you fall gently into the slow 19th Century farm atmosphere. The buildings are of austere Shropshire stone and slate, mixing well with the hillsides. Shropshire is a county of unexpected contrasts; although it is the most rural county in England, it also saw the birth of the Industrial Revolution at Ironbridge. Because it is in the border region between Wales and England it retains some of that border schizophrenia.

The work involved in running a farm as it would have been from the 1870s to the 1920s, is immense. Acton Scott has a full program, from spring ploughing through to lambing, seed bed preparation, sowing of oats, barley, and a variety of root crops for cattle feed (swedes and turnips), shearing, haymaking, cidermaking, beekeeping, milking, dairying, fencing and hedging! Although the public can watch these tasks being performed, they are not 'demonstrations', they are actual episodes in the working life of this remarkable farm.

We watched the preparing of a seed bed for winter oats and winter wheat, all done slowly, painstakingly and extremely skilfully by horse-drawn implements. Other demonstrations, of a bewildering variety of village crafts, are held regularly throughout the year, such as basketmaking, spinning, weaving and blacksmithing. Buttermaking is done every day in the dairy and is sold in the local markets.

Shropshire's red Tamworth pig: 'four legs bad, two legs good'.

The Museum's arable land is situated in part of the old Hall meadow and is farmed using a four-course rotation. In any one year the rotation consists of four plots: winter corn, a temporary ley (grass or clover), spring corn, and root or forage crops. Both the ley and the root crops provide winter food for the stock and help build up fertility to help the two corn crops grow.

Shropshire's main contribution to the cause of livestock farming lies in the breed of sheep that takes the county's name. This breed had its origins in the areas of upland which are common to Shropshire and nearby Staffordshire. With careful breeding, the Shropshire sheep flourished and an export trade to Australia, New Zealand and Canada was developed. Today the Shropshire is back in favour after a long unfashionable period. They are of high fertility and produce good early fat lambs. A fine clip of Shropshire wool has won the British Royal Show Championship on several occasions and is used among other things for knitting wool and machine washable knitwear.

Another interesting livestock breed at the Museum is the red Tamworth pig. The Tamworth, now a rare breed, but once very popular, is directly descended from the original wild boar which used to roam the Iron Age forests of Europe. Some of the wild boar's characteristics have been handed down to the Tamworth — the long snout for instance. The Tamworth's bristly coat enables it to withstand higher temperatures than the paler pigs because it does not get sunburn, and it has been exported successfully to Australia.

Of course the stars of the show, and very hardworking stars at that, are the Shire horses, plodding patiently and placidly through their time-honoured tasks. These 'heavy horses' are descended from William the Conqueror's chargers and bred selectively so that they developed a massive size suitable both for farm work and carrying a knight heavy in armour. They were bred in the

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Acton farm's 'dual purpose Shorthorn cows: descended from British wild cattle.

rich fenlands of Lincolnshire and Cambridgeshire. It is interesting to note that Shire horses were used until 1950 on the original Acton Scott manor farm.

All the dairying at Acton Scott is done with the milk of the farm's herd of dual-purpose Shorthorn cows. The Shorthorn is descended from the British wild cattle, and is a very useful animal whose milk produces a particularly good head of cream. The dairy at Acton Scott is magnificent — clean whitewashed walls, clean slippery floor, oak and sycamore churns, paddles and 'Scotch hands' to make the luscious yellow butter. The butter is a lot paler in winter because the cows are kept in the cowhouse all day but its taste is worth a hundred history books, and a thousand learned treatises on agricultural changes!

If you ever visit, or return, to England drop in to Acton Scott — it is well worth it.

Acton Scott Working Farm Museum, near Church Stretton, Shropshire, SY66QN, England.

MUDGEE FIELD DAYS CONTINUE

access

With the proven success over eight years of the theme 'Everything you wanted to know about farming but were afraid to ask' the Mudgee Field Day will be continued again this year.

The 1987 Field Day Committee feels that with the growing numbers each year, this year's attendance will be the best ever.

Farmers with large holdings will benefit equally with hobby farmers under this year's programme which will cover demonstrations on growing, harvest and use of various crops, and will also look at the end uses of farm products such as wool, fish and timber.

The Field Days not only helps farmers but also the Mudgee community. In the past donations have gone to schools, the library and various sporting bodies, and a campaign for hats for school children was started to reduce the risk of skin cancer.

This year is the beginning of something new for the Field Days Committee and for the Mudgee Region because it is the first year of the Mudgee Small Farm Field Day Perpetual Scholarship. This scholarship will be granted for admission to Orange Agricultural College for the duration of two year's enrollment. Another scholarship will be granted in 1988.

The Field Days are being held on July 17 and 18, at the Mudgee Showground.

For further information please contact the Field Days Office on (063) 72 3615 or Mudgee Tourist Centre on (063) 72 1944.

Brooding over breeding

To breed or not to breed

by Greg Baker
Mongarlowe, New South Wales.

If you want chooks about the place, at some time you will have to buy in birds, either the original flock or replacements for the geriatrics. If you don't have an incubator, an obliging broody chook or a large bank balance to cover the cost of point-of-lay birds, buying in day old chicks is an ideal choice.

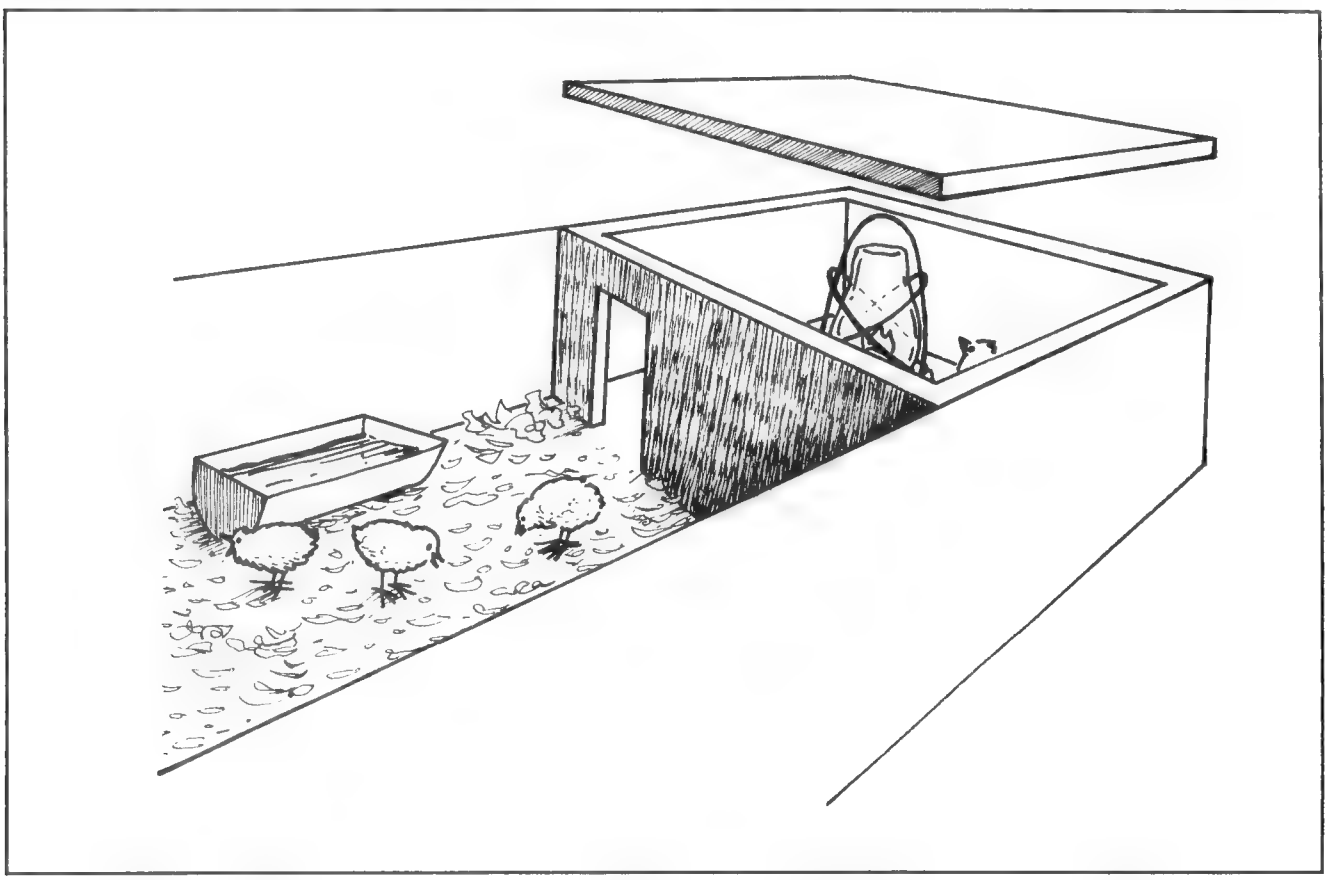
Rural newspapers have regular advertisements from hatcheries with information on breeds and prices. Price depends on quality, but ranges from about $1.20 to $1.80 each for pullets, 20 cents to $1.00 each for cockerels, and 75 cents to $1.25 each for unsexed chickens. A batch of unsexed chicks should turn out to be half males and half females, but the actual mix may vary. We have bought cockerels and pullets separately because we've wanted different numbers of each. We've also bought different breeds, colour coded so we could tell the difference.

The two commercial hatcheries we have bought from were excellent to deal with and prompt and reliable with deliveries. Day old chicks seem to travel unscathed overnight by rail. They come in sturdy cardboard boxes lined with wood shavings. They give off loud, insistent cheeps until they're removed, and then the boxes go onto the compost heap.

One hatchery we dealt with, however, despite advertising otherwise, did not vaccinate the chicks (or used old vaccine) against Marek's disease and we've had large losses from what seems to be this disease. There's no way of guarding against this with day old chicks: buying them in and learning who to deal with by experience seems the only way.

There is, of course, a problem with day old chicks: they need to be kept warm. In the absence of an obliging warm and fluffy mother hen you need a brooder and, of course, an outside run.

That's no great problem if you've got money. Just zip down to your local stock and station agent and buy a brooder. But then perhaps it would have been cheaper to



Greg's brooder: half a litre of kerosene is enough fuel for 24 hours of heating.

buy point-of-lay hens in the first place. So, if you don't have big bucks to outlay you can build a brooder.

There are probably dozens of ways to build a brooder. We decided to build one with minimum energy consumption in mind. It gets a bit cold at our place at night even in summer, so we didn't want to spend too much on warmth or end up with a great mass of smothered chickens as they clung close for warmth.

Our solution for 25 chickens was to build a wooden box about 60 cm square and about 35 cm high, line it with polystyrene foam, and line it again with scrap plywood. The insulation was old 5 cm polystyrene foam sheets we had kicking around. There are many different insulation materials you could use, for instance: left over pink batts, skirting or belly wool, screwed up plastic bags, newspaper, or polystyrene pieces cut from the modern style fruit and vegetable boxes. In our larger, Mark II brooder, built to accommodate 80 chickens, we used old clothing and newspapers.

To heat the brooder we use an old hurricane lamp recessed into the floor for stability. It stands about 30 cm high and holds about half a litre of kerosene, which is enough for at least 24 hours operation. In the old days, when living in the big smoke, we used an electric light, but now we can't afford to use the power: solar power is not an appropriate source of heating energy, whatever the heating element used.

The main problem that we've had, as it turns out, is keeping the brooder cool enough. We've solved that in the Mark I version by having the whole lid top of the brooder moveable. To allow ventilation and cool air through the door, we raise the lid by varying amounts depending on the temperature.

However, you can easily tell whether the chickens are too hot or too cold. If they are too cold, they will huddle up against the light. If they are too hot they will retreat as far as possible from the light, stretch out their necks and pant. In extreme cases, they become bathed in sweat until they are drenched. If this is allowed to happen they may die from cold or pneumonia later as the water evaporates.

You need to use the brooder for about six weeks depending on the weather. Then it can be removed entirely from the run or used for overnight use only. Other accommodation is necessary, of course, if you remove the brooder, and they need plenty of room. The problem of smothering is one to keep in mind. Leaving about two square metres per bird from six weeks is probably a good compromise of materials versus expenditure.

The only other thing to watch is their appetite for polystyrene. I'm not sure what the attraction is but they love it. Old polystyrene might be cheap feed but I suspect they won't grow much on it!

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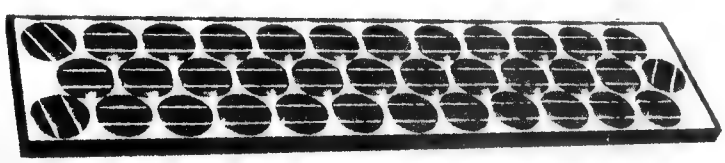

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Inverters: using 240 volts with solar

by Jose Robinson

Wild Cattle Island, Queensland.

We have lived for seven years on an in-shore Queensland island far removed from the mains electricity grid. We have come to appreciate that some added conveniences to make life easier can mean a lot.

Our latest addition to the household some months back, was *Ivan the Inverter*. We'd often talked about the practicalities of installing an inverter to convert 12 volt power to 240 volt, but hadn't actually realised what a tremendous bonus it would turn out to be.

For years we had grumbled about the noise, pollution and appetite of our *General*. (*The General* is our 3 kva generator lighting plant).

The General is not a fuel gobbler: he is fairly economical as generators go, averaging about 0.6 litres of diesel per hour. However, the hassle of constantly transporting fuel to the island, plus its ever-increasing cost, was something we decided we could do without. So it was into solar energy for us.

First I'd better explain about *Ivan*, *The General*, and other such names that may crop up. Maybe we've become a little different having lived as the sole permanent residents of our island for seven years. My soul-mate and I are inclined to bestow names on things which make up part of our daily lives. For instance our slow combustion stove was christened MacTaggart from the day it was installed — simply because it was manufactured in Scotland. The diesel generator became known as *The General* because he initially dominated our lives. He even has a painted plaque on his shed door stating his title!

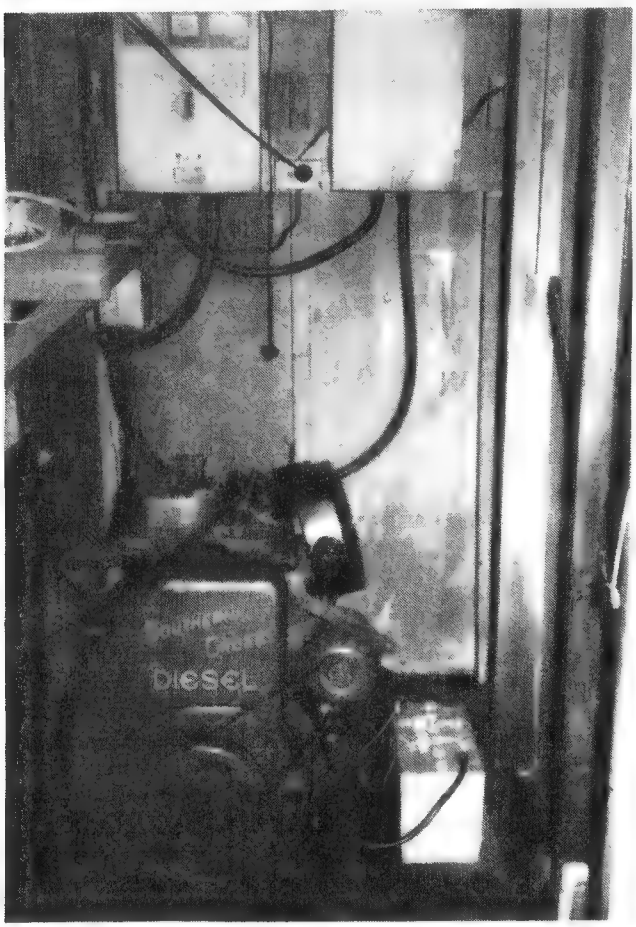
The chookyard is Chooky penthouse and the bee hive area is known as Bee Village. So it followed that when we acquired the new inverter, it took on the title of *Ivan the Inverter*. Oh yes, I almost forgot to mention that our automatic pilot on the boat is named Flinders (after Matthew).

For the uninitiated inverters are machines which convert (battery) stored DC electricity into 240 volt AC for use in the home. The static inverters are iron core transformers and semiconductors such as transistors and SCR's. These machines are very reliable and efficiencies of 90 percent are quite common.

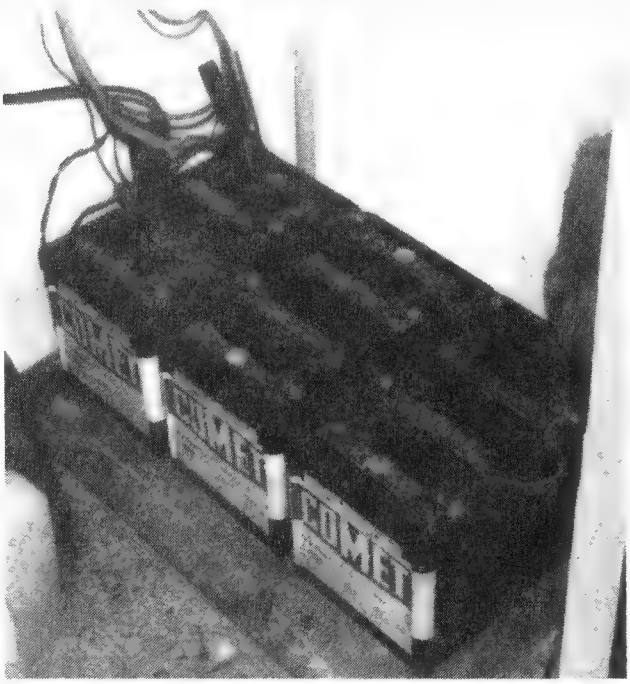
Our solar system began a few years ago with only one 42 watt solar panel, and gradually we boosted it to two, then three and now four. Our bank of six two-volt deep cycle batteries plus a battery protector for 12 volt photovoltaic systems completes the circuit.

The house is wired throughout for 12 volt as well as 240 volt power.

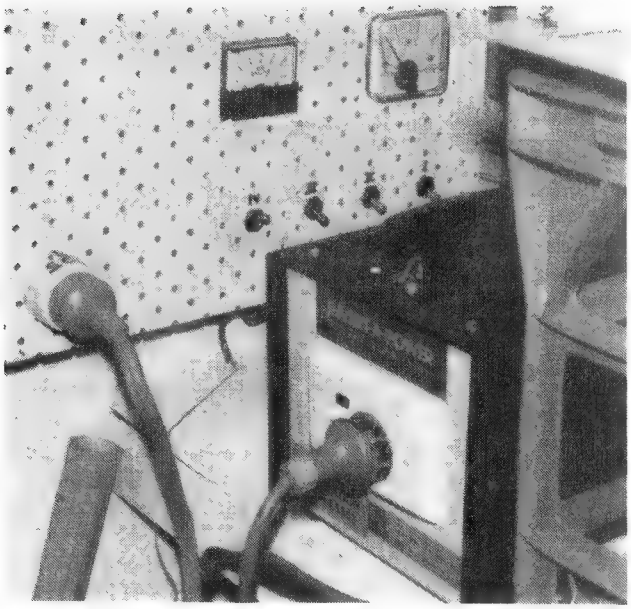
The battery protector is a charge controller. It uses a two-step control scheme which allows maximum charging, just to the point of gassing and then switches to a float charge mode. This prevents electrolyte loss due to



Jose's backup 3KVA diesel generator lighting plant: 'The General'.



The bank of 6 2V deep cycle batteries.



The inverter: lots of tricks up its sleeve.

overcharging and allows the batteries to become fully charged at a low rate. The battery protector is also a load management device which can protect against harmful deep discharge. And it provides feedback about the system's daily cycle.

The six deep cycle batteries which make up our battery bank are different from car and truck batteries because they are designed to be charged and discharged in continuous duty. A car battery is designed to start an engine and remain charged, and it is because of this that they're not very successful in home lighting plants.

Ivan the Inverter stepped into our home with all the aplomb of a knight in shining armour. Had I realised just what a multitude of tricks he has up his sleeve Ivan would have been introduced to our household years ago. Yes, we can now go for weeks on end without needing to tickle *The General's* tonsils with diesel and we still have the use of most of our 240 volt appliances, thanks to Ivan.

Since we've installed the inverter, the only time we need the generator's power is for extra large use of power tools. Everything else is simply run through the inverter: 240 volt fans, casette player, radio, blender, 300 watt iron, drill, sewing machine.

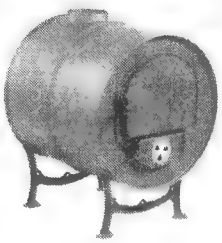
We can run our 12 volt colour television set on either the 12 volt system or through the inverter. Colour televisions do use a lot of power, but with our present solar set-up we have no problems.

The generator is still our back-up system in the event of weeks of rain, with the sun not shining at all to recharge the batteries. Rain for a whole week is such an unlikely and improbable happening in this neck of the woods that we hardly ever have to consider it. Of course the solar panels will still charge to a lesser degree in dull and rainy weather.

We are more than happy with *Ivan the Inverter's* performance and would recommend him to anyone who wants to plug into the sun. No noise, no pollution, and 24 hour a day operation.

Be Warm & Cozy This Winter!

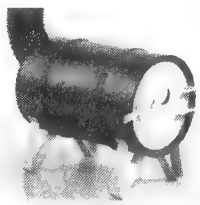
You could have a heater like this for less than $100.



The 'Republic' HOT DRUM

"Was that really a 44 gal. drum?"

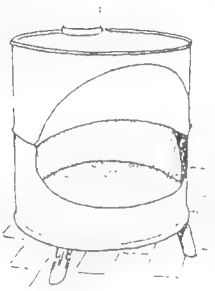
This is a comment we hear often when the **Republic HOT DRUM** is displayed. The attractive cast iron door and legs are designed to catch the eye, and the lines of the drum blend into that image. The 'feel' of cast iron combined with the strength and durability of steel. With the drum cut down to 2/3, the proportions really come together. You can see from the photo that the result is excellent.



The 'Mighty Mini'

The **MINI HOT DRUM** kit converts a 13 gal. drum into a popular size of heater. The **Mini** can take wood twice as long as the average 'pot belly', and easily carry a fire overnight. **Mini** owners soon develope a strong affection for this **mighty** little heater that lights so easily and burns so steadily.

In response to popular demand we also supply **complete HOT DRUMS** as in the photos. We use heavy-duty drums, sand-blasted and coated with a special high temperature satin black finish, with gilded fittings for **best appearance.**



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"But how long will the drum last?" I'll bet that was the next question on your mind. All of these heaters are designed so that **the drum will not over-heat and burn out.** The first one I built in Australia is 8 years old, and is as good as new. Many in Canada are 10-20 years old and still in use. The 'space-age' high temperature paints available now, give very good protection.

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Check the **HOT DRUM NEWS** for shipping costs to your door, or ring now with your BankCard or Visa number for **immediate shipment.**

Send for your free copy of HOT DRUM NEWS right now, and see how you could use one of these kits to recycle a drum into a wood heater. Or better yet, buy a **complete heater,** ready to keep you **warm and cozy this winter.**

The **HOT DRUM NEWS** also has information on water heating, fireplace conversions, central heating, installing a flue, and other hints for all wood burners. Also learn about **TIN-CUTTER, 'The 44-gal Tin Opener'.** Designed for cutting 44 Gallon drums, it also slices through roofing iron as if it were paper. A very useful tool for any handyman.

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or ring: **(071) 942496**

(Almost) year round tomatoes

by Jackie French
Braidwood, New South Wales.

You've cossetted them, or neglected them and they've fruited anyway. You realise all over again what tomatoes can taste like. But unless you live in the tropics the tomato season is always too short. However, there are ways to extend it.

Extend the fruiting

Don't assume that the first big frost means farewell to your tomatoes. Pick all your tomatoes, hard green or not, as soon as the outside leaves are touched by frost. You can let them ripen on newspaper inside in a nonheated area. Check through them every few days for bad ones. They should continue to ripen for about three months. Pull out plants roots and all, with as much soil as will stay on. Hang them up in a sheltered spot upside down — again, you should get ripe tomatoes for about another three months, but the hard green ones will continue to grow for a couple of weeks.

Protect from frost

Tie brown paper bags over bunches of fruit. (This also keeps fruit fly from ripe fruit). Enclose your bush in a wire mesh guard, then fill nearly to the top of the plant with a very loose packing of old dry hay or dry bracken.

Grow your tomatoes in the middle of your garden where they will be protected by taller plants. I grew some of last year's in the middle of the corn patch, turning the corn plants down after harvest to form a canopy over the tomatoes. The 'inner garden' plants bore for at least a month longer than the ones on the perimeter. Don't worry about shading the plants and so getting less or later fruit — tomatoes ripen with heat, not light, and protected plants will have a more constant microclimate to grow in.

Make a tower of old car tyres. The higher the tower the better the frost protection (and the harder to pick). If your tower is more than three tyres high drive a stake down the middle to keep it stable. Fill it with compost or good soil. Plant a tomato bush in each. The black tyres will absorb heat as well as keeping the bushes out of reach of early or late frosts.

Try potted tomatoes

Dig up healthy plants at the end of the season — roots, soil and all, and place in a large pot on your verandah. Prune off about half from the top. Water in well and continue to feed them. You can grow Tom Thumb tomatoes (which I've always found to be the earliest ripening and most cold resistant tomato) on a table in a pot inside by a window. They can keep bearing — if slowly — for years.

Make a window glasshouse — slot another piece of glass in your window cavity (a mirror is even better but this means you don't get light or heat from your window). Use the 'stick ons' sold for wall mirrors and the whole job only takes a few minutes as you seal the extra glass against your inside wall. Use this tiny greenhouse for year round tomatoes — or anything else cold-sensitive which you value.

Start your plants early

Speed up your first crop by: starting plants indoors, in a cloche or greenhouse (see above). Cover young plants with bottomless glass flagons. Build a manure or compost heated cloche. Dig a trench, at least a foot deep. Fill with *decomposting* compost (sprinkle on a bit of something high in nitrogen to get it going, for example urinate on it) or fresh cow or horse manure, or hen manure mixed with equal quantities of earth.

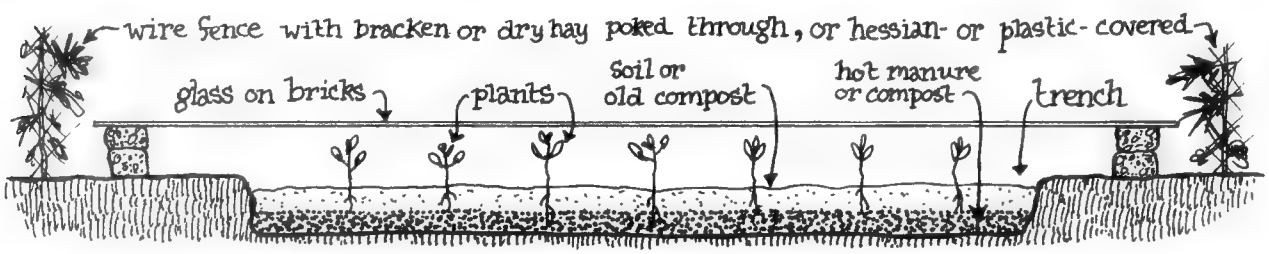
Cover this with three inches or so of old compost or soil, and plant your tomatoes. The extra bottom heat from decomposition should keep your plants boosted for up to six weeks. Either cover the whole lot with a glass cloche, or surround it with a wire fence well spiked with bracken or old hay. This setup, combined with the added warmth of the hot bed, should be enough to keep off frost in all but very cold areas.

This method can be combined with the tyre method outlined above — just fill your tyres instead of a trench - and it becomes even even more productive.

Keep successive bushes going

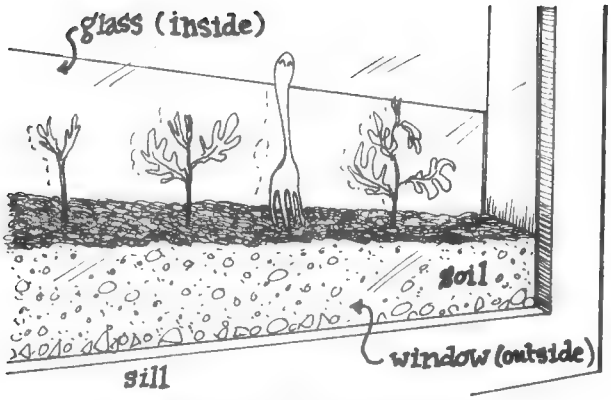
Poorly tended or prolifically bearing bushes often break down before the first frost anyway.

Plant a succession of early, late and mid season varieties. Take 'clones' of your bushes. Only stake the central stem, not the leaders. Let these trail on the ground. Cover them with a bit of soil and they'll root. Transplant elsewhere in the garden as the older plants may be more susceptible to disease and so infect the younger.



A manure or compost-heated cloche,which can be surrounded by a wire fence spiked with bracken.

A tomato bush inside a tyre tower.



A quick and easy kitchen glasshouse.

You can try grafting tomatoes onto spuds. This works, and it's fun — spuds and tomatoes from the same bush — and grafted spud tomatoes *seem* to be more frost tolerant. You can prevent *fusarium* and *verticulum* wilt by covering the ground where the tomatoes are to grow with clear plastic for a month before planting.

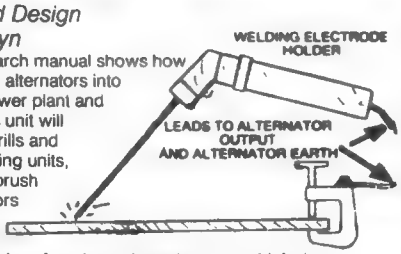
General tips for good tomatoes

Don't prune off the leaves - you'll just make the bushes more prone to frost and sunburn without hastening ripening. Tomatoes ripen according to the temperature, not the amount of light they receive. Don't touch the bushes after smoking - you may pass on tobacco leaf mosaic. If you're a tomato connoisseur remember that the taste in a tomato comes from the pulp — so squishy ones taste better.

Pick tomatoes regularly so the bushes don't break down with the weight . . . tomato bushes feed you regularly so you should feed them regularly too. Give them a good mulch of compost, lucerne hay or wilted comfrey every three weeks, or a less nutritious mulch with added manure, water, fresh urine (old urine will burn off shallow roots) or blood and bone. Avoid high nitrogen fertilisers by themselves — you'll get the best tomato foliage on the block, the best fed bugs and few tomatoes, but if you can use a few of these tips the chances are that you'll have an extended and more productive relationship with your tomatoes.

HOW TO BUILD A PORTABLE HIGH VOLTAGE POWER PLANT AND WELDING UNIT USING A SECONDHAND CAR OR TRUCK ALTERNATOR

Research and Design
by Jim Allowyn



This special research manual shows how to convert old car alternators into a high voltage power plant and welding unit. This unit will run 240v lights, drills and power tools, heating units, and all universal brush type electric motors (will not operate induction motors)

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As a guideline to performance, one 35amp alternator will run 240v lights, power tools, spot weld, heat steel with twin carbon arc rods and do light welding. Two 35amp alternators wired in parallel gives an output of 70 amps which is plenty for most jobs

NOTE: The amps/voltage ratio is easily varied and controlled enabling a low voltage, high amperage current, or a stabilized amp base with full variable low to high voltages.

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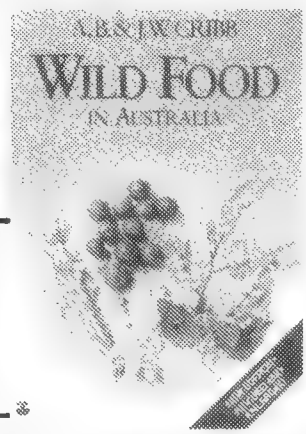

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Enhancing the orchard

by David King
Rock Valley, New South Wales.

Albizia lophantha is a useful tree for the orchard, based on permaculture principles. It is a legume tree which provides nectar to birds. Although *Albizia* is a native of Western Australia it is now naturalised in the Eastern States, Hawaii, South Africa and perhaps elsewhere. It's a member of the subfamily *Mimosaceae*.

It is fast growing and can reach 6-8 metres in height. It has small bipinnate leaves and an openness that allows dappled light through to the ground. The seed pods are flat, broad and thin and hang in bunches. Like the wattles the seeds need filing or hot water treatment.

One of the important features of this tree is its flowers. It has greenish-yellow flower heads that resemble those of callistemon. Like the bottle-brushes the nectar can be gathered by birds such as honeyeaters. This is the only legume tree I know of to provide nectar to birds. Nectar-drinking birds must also eat insects to gain proteins for a balanced diet. Seed-eating birds on the other hand get protein and sugars from the seeds and don't often eat insects.

Because these trees are short lived they can be planted between young climax trees to fix nitrogen for future use in the soil by the climax trees. To make the tree bushy, tip pruning can be done regularly and the tips added to the climax trees' mulch. Like the wattles the wood has a high calorific value and is ideal for the first load of wood after kindling in stoves or fireboxes. Borers can shorten the life of the trees but the resulting firewood means control isn't worth bothering about.

In the first year supplementary watering may be needed in dry times to establish this useful species. It is not a specimen tree and should be used in group planting only. The leaves close at night and times of stress. I haven't seen seeds for sale, so if you can't find them locally send me a dollar and a stamped addressed envelope for a packet (c/- PO, Rock Valley, NSW, 2480).

Albizia: a fast-growing legume tree which provides nectar for birds.

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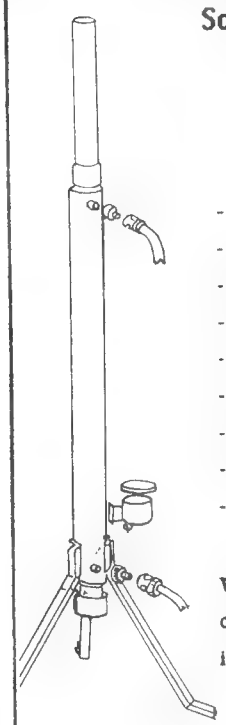

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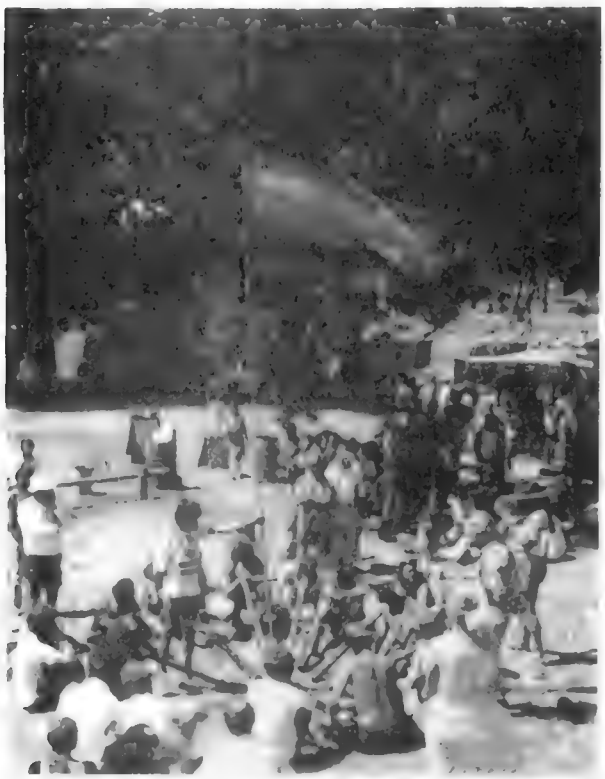
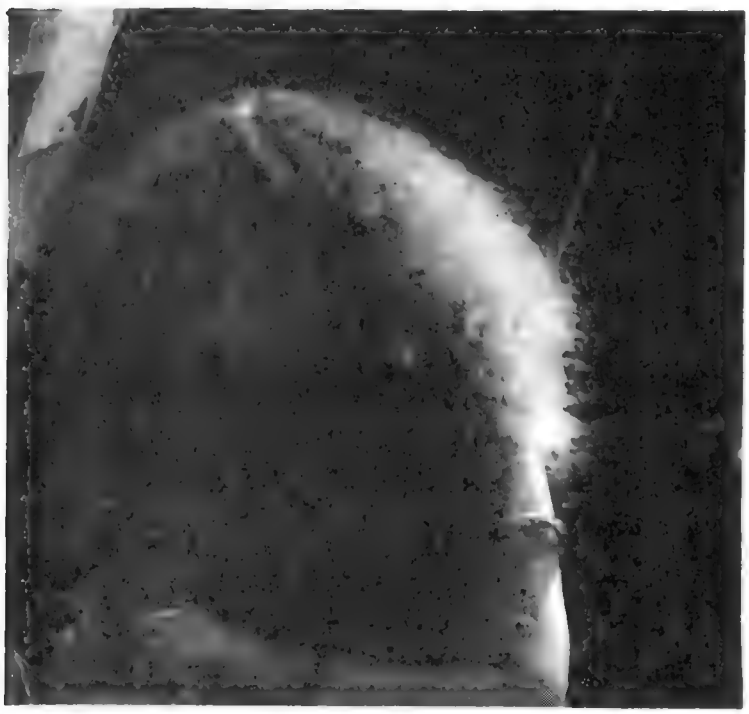
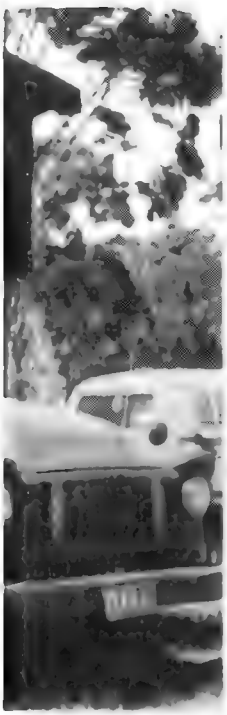
Glenlyon Reserve, near Daylesford, Victoria

by Bethany Alldridge







Real men do use 12 volts

...and don't need meat to prove it.

by Peter van der Wyk
Nimbin, New South Wales.

Back in the '60s I became a vegetarian and the general Australian attitude in those days was that without meat you would die. The literature from various State Health Departments said (and in many cases still says) that a healthy diet means consuming meat or flesh food at least two meals per day. Now it has become more acceptable to be a vegetarian. In my case, after more than twenty years without meat I am alive and well and living near Nimbin.

I wanted to compare that attitude with the present day view that 240 volt electricity is *real* power and 12 volts is only kid's stuff, and when you finish playing with it you'll want to return back to the *real* man's world of 240 volts. The general attitude has been that low voltage is not capable of doing all the things that 240 volts can do.

Only recently I was showing someone over the Websters Creek property where I live, showing him the four Pelton wheels (hydro electric systems) that charge the batteries of most of the households on the property, the solar panels on each house that charge the same battery banks and the five wind generators up at my place. In the process I also showed him several battery banks. His comment was ". . . so you haven't got power here then. "

I have always maintained that 12 volts is capable of doing anything that 240 volts can do. The problem is that the range of 12 volt appliances on the market has always been very limited. The main problem with larger equipment is that the wire needs to be much larger to overcome voltage drop. But steadily more and more low voltage appliances are becoming available and 12 volt lighting is improving at an equally steady rate.

12 volt tools and appliances

Makita now manufacture a whole range of rechargeable power tools with 12 volt charging units. The range includes three models of electric drills, an electric screwdriver, sheet sander, angle grinder, jig saw, router, small circular saw, grass cutter, grass trimmer, hedge clipper and vacuum cleaner. Of all these the vacuum cleaner is probably the most poorly designed because it doesn't have a bag to collect the dirt (collecting instead in the front plastic chamber), and it has poor suction. Poor suction is common to most low voltage vacuum-cleaners.

I have the hedge trimmer which I use as a grass trimmer for where the lawn mower cannot reach. I also have the jig saw and the angle grinder. The angle grinder will also take a small sanding disc and a wire brush attachment if you remove the safety shield. With these tools the manufacturer has compromised between the power of the tool and the amount of operating time between charges.

There are now several rechargeable kitchen appliances available, such as the rechargeable electric knife and rechargeable can opener. I have recently acquired an egg beater, dough mixer and milkshake maker combination which was equipped with a 240 volt charger. I replaced the 240 volt charger with a 12 volt charger (the same as the one I use on the rechargeable torch — see EG 48).

I have also recently purchased quite a few battery powered citrus juicers and am in the process of putting a lead on them to plug straight into a 12 volt power point. But these citrus juicers run on four 'D' size batteries which adds up to 6 volts. When I measured the power consumption of the juicer in action it used 1 amp at 6

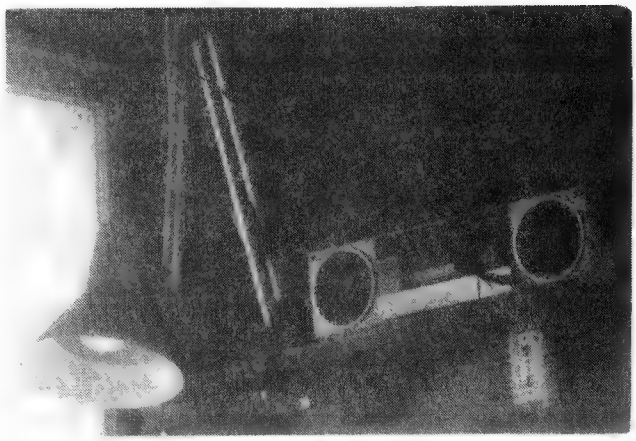
Peter Pedals sitting at his desk writing his latest article using his low voltage system, with a quartz halogen desk lamp above him.

volts. So how do I run it on 12 volts without burning the motor out prematurely?

An electric motor is not as voltage sensitive as most electronic equipment and so it is not necessary to provide a voltage regulator. It is enough to provide a resistor that would handle more than 6 watts (amps multiplied by volts) and that would create a voltage drop of about 6 volts (the difference between 12 volts and 6 volts). To work out the resistor needed I multiplied the required voltage drop by the known amperage of the appliance and came up with the value of 6 ohms. The nearest I could find in wound resistors was 10 watts at 4.7 or 5.6 ohms or two 5 watt resistors in parallel of 10 or 12 ohms each, this combination giving 10 watts at 5 or 6 ohms. So on the beginning of the 12 volt lead (positive or negative wire) and the motor I then solder this resistor.

I did build up a 12 volt juicer/blender quite a few years ago by replacing the 240 volt motor in an existing machine with a heavy duty 12 volt motor. I sold this machine to a friend and it is still operational. From that exercise I know that a 12 volt juicer/blender is perfectly feasible but not really worthwhile as a one-off. It would be wonderful to see such machines manufactured commercially because it would avoid needing an inverter to run the juicer/blender.

Another friend of mine once wanted a 12 volt hair drier so I wrote away for one. When it arrived it looked like a hair drier for Barbie dolls (it really did work though). One problem was that it would only blow hot air. I modified it so that the switch would not turn both the blower and the heating coil on, but only the heating coil. You could turn the blower on and off with the power point switch. I measured the heating coil to use 12 amps and the blower about 0.5 amps.



A flexible arm lamp which has been fitted with a 12V 20 watt quartz halogen light globe. Halogen lamps are suitable when close work requires good lighting.

I have a 12 volt washing machine now that takes one kilogram of clothing at a time. It has a five minute timer on it and uses 5.5 amps when washing. What I would prefer is a 12 volt 1/4 horsepower motor of the same dimensions as a standard 240 volt washing motor so that you could just swap over the motor in virtually any brand or model of washing machine. You could of course have a generator to run the washing machine and give the batteries an extra charge at the same time (with a 240 volt battery charger).

The other item I have recently acquired is a 12 volt travel iron. I have previously written that battery power is not suitable for producing heat because of the amount of electricity required to produce a certain amount of heat. I had suggested that an iron placed on a fire, such as a gas burner, would be less wasteful of limited resources. But if you have sufficient power, that is, you have more charge available for your batteries than you have discharge, then why not have an electric iron? My travel iron measures 8 cm by 16 cm and stands 8.5 cm high with the handle up and 3.5 cm with the handle folded down. It uses 10 amps at 12 volts and when it has come up to the required temperature it switches on and off to maintain that temperature. Some might describe this as a toy, but then *real men* don't do ironing anyway.

Battery powered lights

I have written in the past about super krypton 6 volt 6 watt lights. Several articles have since appeared about the new hybrid fluoro lights. I have never been very keen on fluorescent lights but these hybrid fluoros are good. The ones that I have been using are the Panasonic U-shaped tubes (such as Panasonic Compact U Ful 5LE) which plug in with four pins on the base.

I have been preparing a few of these for people using a 9 watt inverter enclosed in a Clipsal mounting box (catalogue number 238) and a blank plate to cover it

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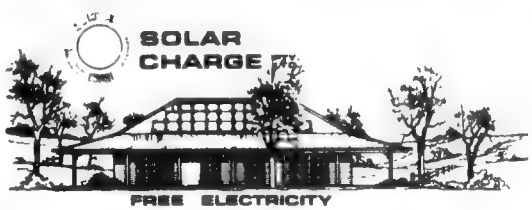

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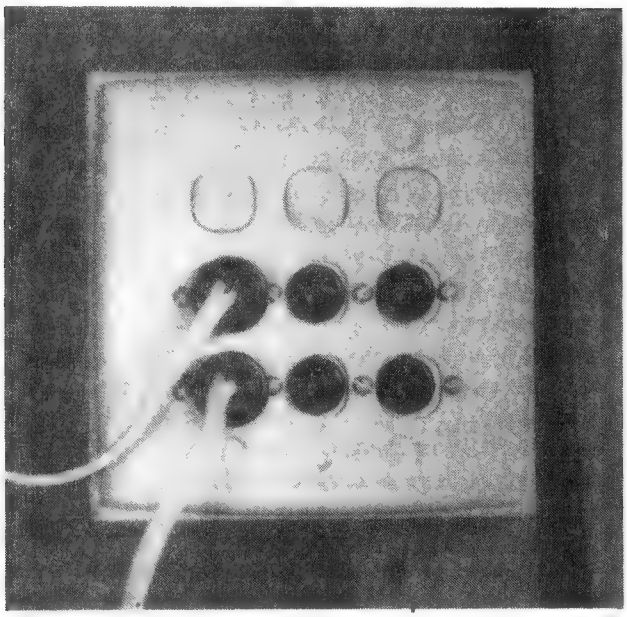


Peter's own switching power points built up from 9 gang plates using the appropriate mounting blocks.

(catalogue 31VX). I use the box as both a ceiling rose and a housing for the inverter. I then drill a hole either in the middle of the lid for a flush ceiling fitting or in the middle of one of the sides for an exposed beam fitting. I drill a hole just large enough to take the four-core flex that connects to the four pin socket which is fixed into a pendant type light fitting (these will take most standard 240 volt type lamp shades).

The so-called 9 watt inverter for these lights turns out only to draw 0.5 amps (this means that a so-called 9 watt hybrid fluoro actually only consumes 6 watts), which is the same as the krypton lights. However, the hybrid fluoros are certainly a lot brighter than either the super krypton lights or the equivalent conventional type of fluoro.

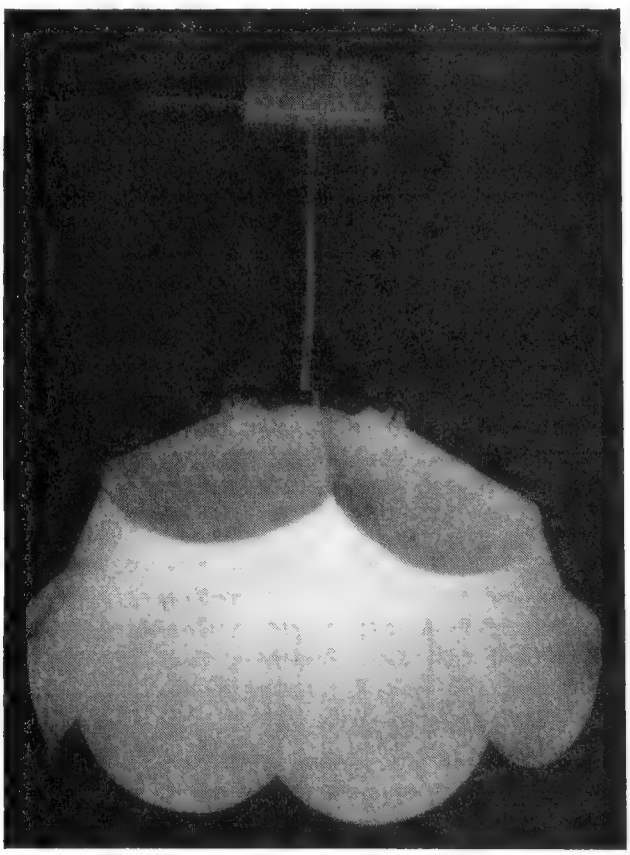
The hybrid fluoro lights take up to 20 minutes to reach full brightness and that is mainly because of the cocktail of gases inside them. Most readers are probably familiar with mercury vapour and sodium vapour lamps. They are both used in street lighting. The mercury vapour lamps give off a very cold blue light and sodium vapour gives off a very warm orange light. It is because of the mixing of these gases that the hybrid fluoro gives off such a bright white light. I have been obtaining the component parts from Blue Ridge Solar in Murwillumbah. If you want them made up as described I can send them to you if you write to me.

Quartz halogen lights

The other type of lights worth mentioning are the 12 volt, 20 watt quartz halogen lights. There are quite a few different manufacturers but I have now settled on the Philips bayonet version (catalogue number 6435 GBF). These are a little smaller than the bayonet mountings on the standard 240 light globe. Utilux make fittings for them, both the pendant type of hanging fitting and the batton type fitting. By placing two washers on them you can fit standard 240 volt type lamp shades.

Both these lights are fairly expensive, but they are well worth it, considering the longevity of the light globe (3000 hours for the halogen and 6000 hours for the hybrid fluoro), and the quality and efficiency of the light produced. Having more efficient lights is like getting more power from your solar array. I can recommend the hybrid fluoro for general room lighting such as in the lounge room, kitchen and bedroom and the halogen lamps are good for placing over tables and desks where a good working light is required. The halogen lamps are the ideal light for a flexible arm study lamp fitting.

PS. I noticed a reference to me at the end of the article by Greg Baker 'Mulch in a minute with chaff cutters' in EG 53. I have wanted a chaff cutter for a long time, but they seem to be scarce around these parts. I would want to provide it with a seat and a set of pedals but cannot go into any details of how it's done until I know exactly what I am working with, for example the size of the whole machine, the size and length of shaft and whether there is room for an extra bicycle sprocket.



A hybrid fluorescent light for 12V systems using small inverters mounted inside a box with a pendant fitting which the U-shaped fluoro tube plugs into. This shot shows a spherical diffuser and eight faceted white reflector fitted to the unit to improve quality of light and appearance.

Earth Mother's post partum blues

American terminology and seasons aside, the following story, originally reprinted from the Southern Vermont Dairy Goat Association Newsletter, shows that New Settlers the world over face similar trials and tribulations.

by Celeste Davis

Anywhere from a week to several months after childbearing, some women experience a mild to severe depression commonly known as the 'baby blues'. Some experts say it is tied in with chemical changes in the mother's body, she'll be tired and irritable and maybe feel totally incompetent to care for the baby.

Although Mitch and I don't have any children, I annually experience post partum blues at the end of April and into May. By Mother's Day I'm about ripe to spit nails at Mother Nature (or father Mitch for that matter). Things get out of hand — I feel overwhelmed and my visions of being 'Earth Mother' fly out the barn window.

I know it is brought about by physical changes in my body. I metamorphose like the Incredible Hulk, my arms lengthen by several inches (from carting all those extra water buckets, lambs, calf pails and pig pails), and then my shoulders broaden (from dragging extra hay bales and grain bags). People ask why I'm suddenly pumping iron — my arms look like giant salamis with weiners for fingers (from milking all those fresh and 'at their peak' udders). Ever see an orangoutang push a wheelbarrow full of dirty bedding with her head in a cloud of hungry black flies? If you have, that was probably me.

Even my insides change — namely my stomach. With all the added work it suddenly craves only one thing - junk food! After a winter of eating only our organically raised meat and vegetables, I get overwhelming urges for cheeseburgers, pastry, pizza, chicken nuggets and chips. Of course I then feel guilty for not living up to our organic farm image and my depression worsens.

I'm fine during February and March. We sell some milk, raise Easter kids, and gorge on chowder, custard, yoghurt, and cheese. By mid-April we get our second rash of kiddings, and that's when I start to crack. I stop wearing a watch, because by now all of our babies know the feeding schedule and they'll blabber and scream an hour early, just so I don't forget them.

The sheer volume of milk we get daily brings on anxiety attacks and I stop thinking sanely. Rather than cutting back the number of milkers (that's logical and indicative of functioning brain cells), I frantically insist that we get a calf, piglets, more cats — anything that consumes milk. They also quickly learn the feeding schedule and I find myself in the ridiculous situation of hiding behind shrubs and trees when I'm outdoors. Ever try planting the garden — in a prone position wearing camouflage fatigues? I do it so as not to attract attention! All it takes is one sighting, one little critter's voice saying "Hello, I see you . ." and the goose gaggle community livestock chorus resounds with all the enthusiasm of the Mormon Tabernacle Choir.

At my lowest (mid-May), the slightest mishap sets me off and I'm ready to sell the place and buy a condo in Miami. For example — raising veal calves is very simple but nobody warned me that they punch the bucket like goat kids . . .With our first calf, Bruno, I innocently held the bucket of milk in front of me with my shoulders hunched over to watch this exciting event. Bruno hungrily walked up, and, with his cute little bull head, gave a hammer blow right into the side of the bucket. Milk spewed up like Old Faithful into my face and chest and dripped down my legs. Earth Mother was baptized.

Yet another brainstorm of mine was to feed some milk to our geese, (Gladys and the Pips). When presented with a panful they all proceeded to bathe in it. Ever smell a gaggle of geese coated in sour milk? And then came the pigs . . . (Black and Decker, Porgy and Bess, Cheech and Chong). "Pigs are a cinch," I said. They love milk! Our only mistake was building the 'pig palace' high on a hill. After four months of three trips a day with milk and grain buckets in hand, I asked myself "Why am I doing this?" Because it's there.

And so it continues until Mitch is through teaching in June, at which time my sanity and happy-go-lucky nature returns. The blues pass, chores take half the time (and steps) and milking is done tandem. The kids screams dissipate at weaning (if there are any kids left to scream!). All's right with the farm, Earth Mother has returned. Until next spring . . . . . .

Reprinted from the January 1987 issue of 'Goat Gossip', the 'quarterly bleat' of the Northern Goat Club of Victoria (Secretary: Judy Henry, Flowerdale Road, Kinglake West, 3757, telephone [057] 865291).

Liquid manure for the garden

The following method of making your own liquid manure is a slightly less messy version of one which appeared in Keith & Irene's 'Hard Times Handbook'.

by Marja Fitzgerald

Upper Mongogarie, via Casino, New South Wales.

Liquid manure is easy to make if you have a grazing animal as a source of manure. You can also make vegetable liquid manure using herbs such as comfrey and nettle, but animal manure is easier to collect in bulk. It's still a good idea to throw in some comfrey and nettle with the manure if you have them available — they will increase the mineral richness of the liquid.

A solid secondhand 44 gallon drum is a good container for 'brewing' the liquid manure. You will need a cold chisel and hammer to take one end out — the end with the bung. After that, leave the now open drum to air for a week or two, as it will probably smell of diesel or whatever else was in it. Then hose it out thoroughly. If it still smells you may need to clean it with a solvent like kero, then air and wash it again.

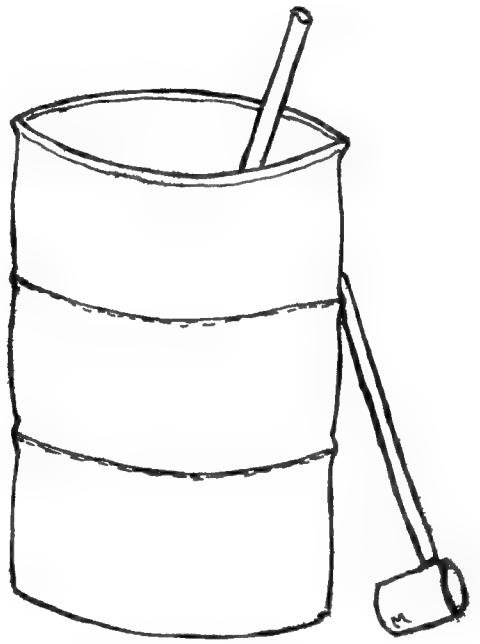
Next, position your drum near a source of water, near or in your garden. Find a stout stick a foot or so longer than the height of your drum to use as a stirrer. Now you can collect your manure — around four to six gallons (or two to three full buckets) of very fresh (less than two days old, the fresher the better) manure. You can take several days to collect it, as long as you immediately put water in the drum to cover your first batch, otherwise its goodness will be lost.

Fill the drum with water to 20 cm (eight inches) from the top. Don't fill it higher, because if you get a rainy spell you don't want it to overflow. Now stir well with the stout stick. Stir it every few days for the next fortnight and then it will be ready to use.

You will need a ladle-cum-measure, and this is easy to make with a large tin can (such as a Brigalow tin), a screw, some fibre string (the sort used to tie hay bales, because its rot-proof) and a tomato stake or stick about 60 cm (two feet) long.

Drill a hole in the centre of one end of the stick, slightly smaller than the screw. Punch a hole big enough for the screw two cm from the lip of the tin. Screw the tin onto the stick, and wind (and tie) the fibre string between the tin and stick to make a tight fit, so the tin will stay at right angles to the stick. Now you have your ladle.

I would suggest half a ladle per bucket of water. (Give the liquid a stir before ladling any out). First water your plants thoroughly with plain water, then pour on the



diluted liquid manure. This way you make sure that you don't burn your plants. You may need to experiment to discover the ideal amount to put on each type of plant. Some, like corn, like lots; others may not want as much.

Liquid manure is an excellent way of encouraging growth — your garden will love it.

This form of manure is particularly useful for brassicas: my grandfather used to grow cabbages the size of beach balls using the same method. As Marja mentioned, burning the leaves is the only possible hazard — the liquid should never be applied directly to any plant foliage.

—Alan.

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Marjoram and oregano

by Liz Sinnamon
'Elizabeth Herbs' farm, Nambour, Queensland.

Liz Sinnamon runs a herb farm at Nambour in Queensland. In EG 53 Liz wrote on growing dill and its uses and properties. Here she shares with readers information on marjoram and oregano.

Marjoram and oregano are brothers in the same herb family. They can be easily grown and have many uses. They are slightly different in appearance: marjoram leaves are small, soft, and a grey-green colour, while oregano leaves are light green and are much firmer. Their growing habits are also different — marjoram is a compact, upright shrubby plant, while oregano has a dense spreading habit.

The flowers of both these herbs are small and white and form tight clusters at the tips of their stems. The herb we know as oregano is actually a wild form of marjoram, and has a more piercing scent than marjoram.

Knot marjoram has small knot-like flowers along the stem, and is not as prolific as pot marjoram, which seems to be the hardier of the two varieties.

Plants can be propagated by taking cuttings about eight cm (three inches) long in late spring, when the young leaves have firmed enough not to wilt when placed in a pot of coarse river sand. When well rooted they can be planted out in pots, or put straight into the ground. When growing from seeds, sow them in a prepared seed-box in spring and plant them out when the seedlings are eight cm high. Both have a tendancy to become woody as they get older, although plants will produce well for three to four years.

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Culinary uses

Marjoram's subtle aroma makes it an ideal addition to many herb mixtures because it helps give 'body' and depth without being too dominant. On its own, it goes well with poultry, fish, egg dishes, vegetable dishes and sauces. Put it into salads, scones, dumplings and clear soups. After drying the herb, and removing the leaves, even the dead stems retain much perfume, so chop these, store them, and add to your next barbecue fire when the first fierce heat has died down. They will give the food a light flavour which your guests will be curious to identify!

Oregano has a stronger flavour, and can be used in pasta and rice dishes, in pizzas, avocado dip, tomato dishes, meat loaf, rissoles, sauces and dressings. Sprinkle it on dishes before cooking. There are many ancient and modern recipes for meals which will taste just as delectable with the stronger oregano or the milder marjoram.

Medicinal

Marjoram and oregano are very powerful antiseptic herbs, when used both inside and outside the body, and taken freely in the diet can help maintain a high resistance to disease. An infusion of the leaves taken as a tea, can relieve nervous headaches, induce sleep, help constipation, and act as a diuretic. Marjoram should not be taken by those with high blood pressure.

Cosmetic

Marjoram, like sage, will help darken hair for brunettes and sprigs tied into a bath bag are very refreshing. Dried leaves can also be added to pot-pourri mixture.

Companion planting

By their fragrant presence in the garden both herbs are a good influence on other plants, and when they are in flower they are a strong attraction to honey bees.

12V APPLIANCE SAVERS

by Patrick Howden
Macleay Island, Queensland.

Following on from *Earth Garden* 52, I want to itemise some 12 volt appliances we have already plus a few we will be getting to complete the list. We have had so much pride and joy in developing our range — both to beat the system by living free (well nearly) and also to make life really comfortable.

Fluoro Lamps

You can buy 20 watt fluoro lamps although we settled on two 8 watt units on hooks to let us move them around the home. These are much brighter than the same wattage incandescent lamps. There is no need to worry about mains flicker with them — at 300 hz (or cycles) there isn't any. Don't get lamps with translucent covers because they waste light. It is more light efficient to place aluminium foil reflectors behind the long tube. The life of these units is nearly 6000 hours and they can be arranged to run dimmer on reduced voltage.

We discovered one odd factor with our fluoro lamps. When we measured the lamp amps the total was 0.23 in one case, and 0.41 for the other, which certainly doesn't equal 8 watts in either case (2.76 watts and 4.92 watts). Nevertheless there is plenty of brightness. They are available from auto supply houses.*

Bug killer

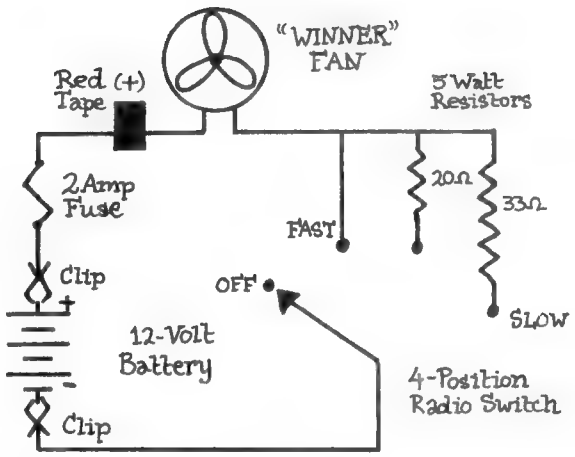
Dick Smith Electronics shops sell a remarkably effective 12V bug zapper for $29.95 with an effective range of 30 metres. It needs to work from the full 12 volts. We close up the house at 5 pm and turn on the zapper for 30 minutes (or longer if other lights are on). The result is no flying bugs, no chemicals and no smoke. A broad art brush is good for cleaning away the exterminated ones. The current drawn on the zapper is only 0.25 amps, or 3 watts. There is no point in placing the zapper near a window or door or else an army of bugs will await your next grand exit.

Vacuum Cleaner

We have two auto cleaners: one from the tip draws 1.8 amps, the other monster with attachments draws a whopping 7.8 amps, and what a noise for $19.48. Both can act as air pumps on clip reversal. Attaching a stick to the nozzle avoids char lady's knee.

Oscillating Fan

Another auto product, the cage-encased blade fan, costs $12.98 — $19.98 and draws 1.05 amps or 12.6 watts, which usually gives far too much of a gale. We mounted our unit on a block of wood with circuit changes shown



Patrick's cage-encased blade fan, modified with the above circuit changes for three speeds.

in the sketch. Usually we switch middle position (0.48 amps), while slow speed (0.37 amps) is reserved for the bed on those hopelessly sweaty nights. Yes, if you are wondering, it is silent. There are two similar models and I advise you to get the lower current fan.

We haven't had to isolate the fan or lamps from TV or radio because of interference, although this may be a problem. Having separate batteries for both systems is a simpler arrangement. Slow fans are also useful for scraping hot air off winter ceilings, aiding water evaporator coolers, cooling wet T-shirts, defrosting, demisting and helping the fridge condenser.

Hanimex TV/radio cassette

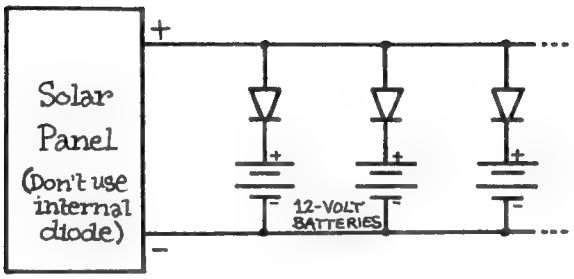
I don't know what our fine bartered 5 inch black and white TV costs. The quoted power requirements are 10 watts although the digital multimeter showed 0.417 amps at 12.7 volts, which equals 5 watts. Via the jug element power saver, the TV works at 10 volts, 0.34 amps, or 4 watts.

This compares favourably with Peter van der Wyk's pocket TV quoted in EG 49. Our antenna consisted of a split twin cable tacked onto a wooden cross of usual TV antenna width. Besides music, the cassette is indispensible in saving computer programs, and the TV can be used as a computer VDU.

Tools

For $52.90 at a marine supply store we bought a high-torque 12 volt, 6 amp drill. Who needs the handle for an extra $17? All the usual Black & Decker attachments, plus a drill stand, fit and the drill is reversible. The drill can, of course, be used as a paint and rust stripper using a

**See also Peter Pedals' mention of fluoro lamps elsewhere in this issue.*



This diode gimmick enables your solar panels to charge only the lowest voltage batteries.

flaying wire (not wire brush) attachment. Wear goggles and a mask when you do this.

Our soldering iron uses 2.27 amps or 27 watts and a shaver would draw only 0.06 amps.

Pump

Our submersible bilge pump is most impressive in raising our swamp water (for the shower, laundry and garden) about seven metres, to a 20 gallon tank in a tree. We place fine wire mosquito mesh around the whole pump and immerse it completely. The output is through a 1/2 inch hose so, for a much better flow rate we couple a 3/4 inch hose 2 inches later — ours is about 30 metres long.

We never let our bilge pump run dry. There doesn't seem to be a need for a check valve in the pipeline — it only slows the flow. The pump fills a big watering can at 4 metres head in about 50 seconds and draws 5.5 amps or 66 watts. We probably use it for 15 minutes, three times a week. After use, the pump is withdrawn above water level, remaining outside. It's easier to cart a charged battery every few weeks to the swamp, than run very heavy voltage loss cables to the well.

Our water for cooking, washing and drinking is collected rainwater.

Voltap for voltages less than 12V

Last article we mentioned a cunning device using $2.50 worth of parts to run many different volt/amp appliances simultaneously. Well the schematic shows Voltap's simplicity. Many low voltage motors (for example a 6V shaver) won't run merely via a resistor. Voltap gives the needed low impedance drive. However, chargeable torch cells (used in shavers, radios and pocket computers) can be charged via the correct resistor to a 12V battery.

We have a quite remarkable computer (my typing excesses don't seem to be able to do without one), a Sharp PC1500, RS232 interface and Brother HR5 printer (full A4 paper). What an unco-ordinated mob of voltages — 6, 8.2 and 9. Roll paper saves trees and the HR5 printer draws 1A only when printing.

Other items we use have chargeable internal cells but luckily none of these items are sensitive to a volt or more variation. This level of variation is well within

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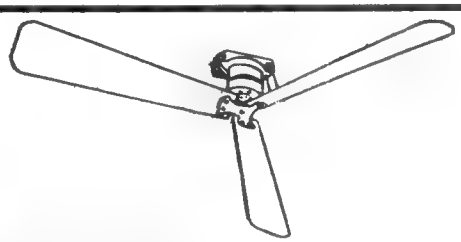

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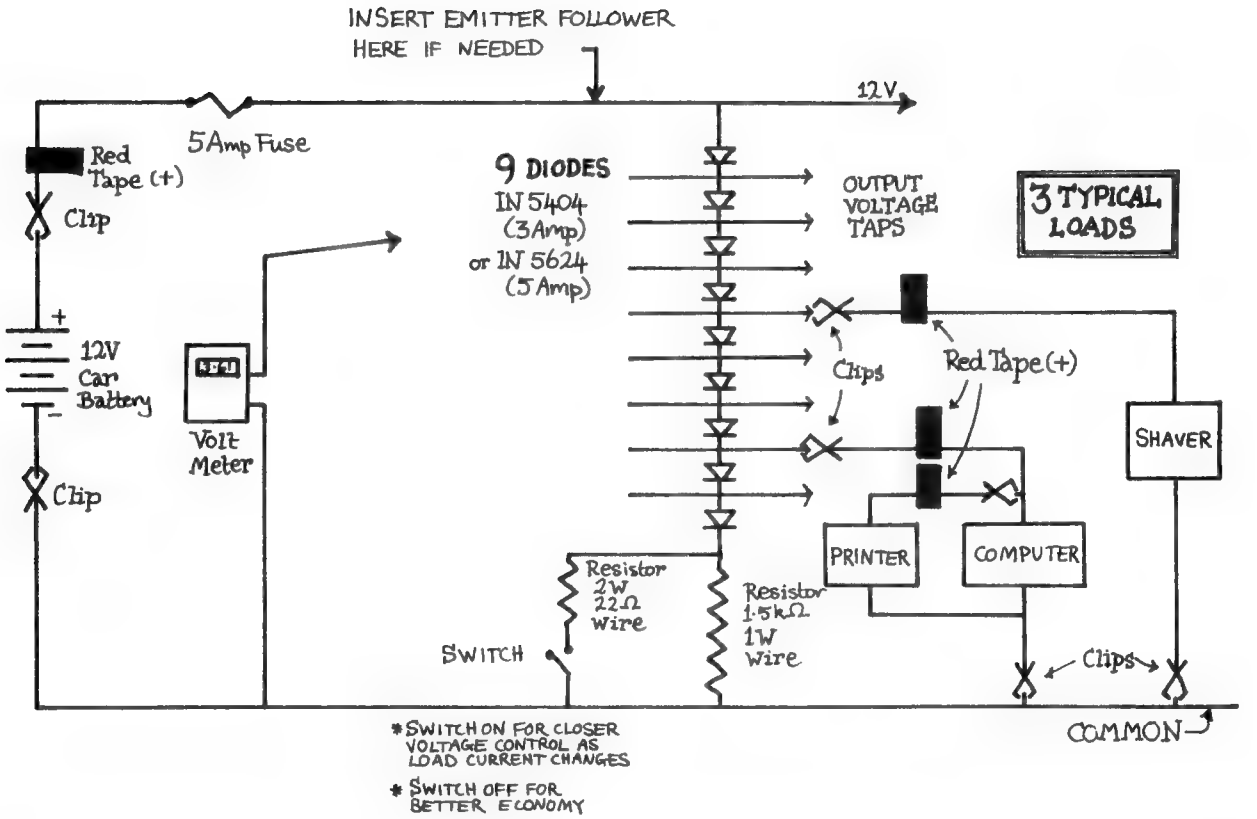

Patrick's economical invention: the 'Voltap' gives low impedance drive and can be used to run many different volt/amp appliances simultaneously.

Voltap's ability to control when one or more gadgets suddenly draw large current. With Voltap connected to 12V via a short thick cable, check each required voltage before and after connecting all appliances, reconnecting any items to the next higher voltage, if necessary.

If you need a very stable voltage, power Voltap through an emitter-follower, not through a regulator like the LM317T (Texas Inst); they don't regulate against current change. I once complained about this but they have 'bigger problems to worry about' — what a brilliant product they missed.

Planned projects

Transport

Did you know (at least in NSW) that without a licence, helmet, insurance or registration you, of any age, can drive a truly motorised bike — providing the power is less than 200W (about 1/4 horsepower). It's true, and why everyone doesn't get one of these is beyond me.

We plan to acquire a tandem driven by a 12V motor battery, charged by a solar panel in rotation with another battery. The speed should average about 25 km/h in neutral down hills, and a second solar panel may be needed.

These developments have been a labour of love for us but perhaps the greatest recent spur to alternative technology development has been the Chernobyl disaster. On our Queensland island appropriate motives have been storms, strikes, power cuts and costs. Now we can go for days in cloud darkness while still charging.

We are happy to help individuals or groups starting cottage industries along the above (simple device) lines — please enclose SAE.

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Boadicea to French chemists

Dyer's woad throughout the Ages

by Sophie Masson
Guyra, New South Wales.

The plant *Isatis tinctoria*, better known as woad, has come down through the ages to us mainly in illustrations in our school history books of fierce Boadicea's ancient British warriors, lavishly painted in the blue dye refined from woad. Its very name has a ring of the archaic and obsolete.

Yet this vegetable link to our distant past could have a great future in modern agriculture, if the work begun by two French agro-chemists comes to fruition.

Woad, known as pastel in France, had a long and productive history in the medieval dyeing industry, in particular in the region around the southern city of Toulouse. Toulousain merchants became immensely wealthy when they cornered the world market in the production of the coveted blue dye. Its value may be gauged by the fact that when the French King Francois I was captured by the Spanish king, his huge ransom was paid by one Toulousain pastel merchant!

The process of making the dye from the fermented leaves of the plant, by crushing them into a ball or *coque*, even passed into French metaphor as the *pays de cocagne* or 'land of milk and honey'.

However, in the 16th Century the bitter wars of religion broke out and, as in all wars, the merchants suffered and pastel fields were destroyed. By the time the dust had settled indigo *(Indigofera tinctoria)* from India had superseded the messy pastel extraction and woad was little used.

In the 20th Century the Chamber of Commerce of Toulouse devised a tourist route in and around the city, known as *La route du pastel* which includes the high points of the pastel industry, castles, manors and the like. More importantly, two scientists, Professors Gaset and Delmas, working at the *Laboratoire chimique des agro-resources* within the *Ecole Nationale Supérieure de Chimie*, a college similar to the chemistry department of a university, saw possibilities in pastel far and above its traditional use as dyestuff and body paint.

Woad is a hardy perennial, originating in western Asia and southern Europe. It attains a height of about 1.4 m and a spread of about 90 cm and is sown in late winter or early spring in shallow drills in a sunny area, reaching maturity about 16 months later. It has long green leaves, growing around a tall flowerstalk, which is much branched and produces a cloud of yellow flowers in summer. The large flat, bluish seeds hang underneath the flowers.

It is the seeds of woad or pastel on which the two scientists have concentrated much of their efforts. Their

research showed that the seeds contain in a proportion of at least 40 per cent, a polyunsaturated oil with a low acid content, a pleasant smell and an agreeable taste. The extraction of this oil does not affect the rest of the plant's vegetable content, which is rich in protein and would make an extremely nutritious cattle feed.

As well, there are certain antibacterial elements in the chemical composition of the plant which would make it interesting in the region of animal health. The leaves make a palatable cattle feed for the winter months, while the bee-attracting flowers make it useful to apiarists.

Woad is a very hardy plant, needing little care and able to withstand extremes of temperature with ease. Two hectares planted by the professors survived both the drought conditions of the 1984 European summer and the severe 1985 winter.

Professors Gaset and Delmas are especially interested to hear from Australia, as their research has shown that the plant would thrive in our climatic conditions. They are preparing a detailed paper on the future and possibilities of their project, presenting pastel as a multi-purpose plant that could be incorporated into the European Economic Community's campaign to reduce surpluses by replacing single purpose crops.

Note: Woad plants rarely succeed if grown in the same ground for more than two years, so they are best sown in different plots each year. Seeds are available from herb nurseries.

No damp spirits at Moora-Moora

by Bob Rich

Moora-Moora Co-operative, via Healesville, Victoria.

It was dry the day before. It was dry the day after. But Saturday 28th February, the date for the Moora Moora Festival, was wet.

I suppose we couldn't complain too much. The first Festival was held in November 1978. It was wet, and handicapped by train and petrol strikes. Then we switched to February, and had dry weather for seven successive years.

Just the same, six months of planning, several weeks of preparation, and days of hard work on last minute setting up were gurgling down the drain. Should we cancel?

There was a lot of work and money invested in the mountains of food prepared, hired tents, publicity, and all the rest. We even had a borrowed fire truck! Besides, how do you cancel a Festival? If anyone was going to come, they would turn up despite any radio announcements, roadside signs, or town criers blowing trumpets.

So, we decided to go ahead, but reduced entry prices to half. Surely that was the least we could do for any lovely people brave, dedicated or foolhardy enough to turn up despite the weather.

The morning was spent setting up tents, changing locations to concentrate everything in a smaller space, and determinedly not giving in to black despair. We also got soaked in the process.

Noon found me at an improvised, canvas-covered information desk, my allotted battle station. Water was running out of my clothes, sloshing about in my boots, and drowning my soul. I was sure no-one was going to turn up. At least we might live on the leftover food for a month or two.

But then people started arriving, and kept coming in a steady trickle throughout the afternoon. There never was a crowd, or even half a crowd, but quality made up for quantity: nicer people you couldn't find anywhere. Very early on I had a chat with a group who had come all the way from Gippsland, *Earth Garden* readers who were interested in building and in communities.

There were people from various places who told me that they made a point of coming just to support us. We offer a free meal to volunteer helpers at the Festival.

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This time there were several who insisted on paying, just to reduce our losses.

Of course, the programme had to be severely pruned. Several kids had caught and saddled three horses but horse rides and hay rides behind the tractor had to be cancelled. Ruth Miller, our resident potter, had prepared a Raku firing, but this had to be postponed (to the following Monday, when the Morra Moora School enjoyed it). And, with indoor space at a premium, the building and energy workshops had to take turns in a large marquee. But demonstrations, talks, tours and workshops took place more or less as scheduled.

Shearer Gordon Hart braved the elements and shore a ram in front of an audience of about 30 admirers (most shearers won't even touch a damp sheep — wet wool clogs up the shears). Wet but happy groups admired the Darrieus wind rotor, went on tours of the many unusual owner-built houses, attended demonstrations, ate huge quantities of lovely food, and generally enjoyed themselves.

Continuous live music was the main thing missing: you can't expose musical instruments to rain. But the bushdance was still held in the evening in the new school building. When I left at midnight, there were still about 30 people dancing or listening to the band.

The faces of the people leaving a Festival provide the best information about its success. Those staffing the gate in the evening reported a constant stream of smiling faces, cheery waves and friendly comments. To me, this means the 1987 Moora Moora Festival was a success.

David Smith has become the host of Australia's first TV series devoted solely to conservation, the environment and natural science. 'Earthwatch' went to air nationally on the ABC for the first time in mid-February at 5:30 pm, and will screen every week throughout the year. As far as we know, David is no relation to Keith and Irene! Here's hoping the show is successful, even though the producer has labelled Smith 'the next Harry Butler'.

In 1854 in the United States, the 'Great White Chief' in Washington made an offer for a large area of Indian land and promised a reservation for the Indian people.

Chief Seattle's reply, published here in full, has been described as one of the most beautiful and profound statements of the environment ever made.

How can you buy or sell the sky, the warmth of the land? The idea is strange to us.

If we do not own the freshness of the air and the sparkle of the water, how can you buy them?

All Sacred

Every part of this earth is sacred to my people.

Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing and humming insect is holy in the memory and experience of my people. The sap which courses through the trees carries the memories of the Red people.

The White race's dead forget the country of their birth when they go to walk among the stars. Our dead never forget this beautiful earth, for it is the mother of the Red people.

We are part of the earth and it is part of us.

The perfumed flowers are our sisters; the deer, the horse, the great eagle, these are our brothers.

The rocky crests, the juices in the meadows, the body heat of the pony, and all people — belong to the same family.

Not easy

So, when the Great Chief in Washington sends word that he wishes to buy our land, he asks much of us. The Great Chief sends word he will reserve a place so that we can live comfortably to ourselves.

He will be our father and we will be his children. So we will consider your offer to buy our land.

But it will not be easy. For this land is sacred to us.

This shining water that moves in the streams and rivers is not just water but the blood of our ancestors.

If we sell you land, you must remember that it is sacred and you must teach your children that it is sacred and that each ghostly reflection in the clear water of the lakes tells of the events and memories in the life of my people.

The water's murmur is the voice of my parents' ancestors.

Kindness

The rivers are our brothers, they quench our thirst. The rivers carry our canoes, and feed our children. If we sell you our land, you must remember, and teach your children, that the rivers are our brothers, and yours, and you must henceforth give the rivers the kindness you would give any brother.

We know that the White man does not understand our ways. One portion of land is the same to him as the next, for he is a stranger who comes in the night and takes from the land whatever he needs.

The earth is not his brother, but his enemy, and when he has conquered it, he moves on.

He leaves his parents' graves behind, and he does not care. He kidnaps the earth from his children, and he does not care.

His parent's grave, and his children's birthright, are forgotten. He treats his mother, the earth, and his brother, the sky, as things to be bought, plundered, sold like sheep or bright beads.

His appetite will devour the earth and leave behind only a desert.

I do not know. Our ways are different from your ways.

The sight of your cities pains the eyes of the Red people. But perhaps it is because the Red people are savages and do not understand.

There is no quiet place in the White man's cities. No place to hear the unfurling of leaves in spring, or the rustle of an insect's wings.

But perhaps it is because I am a savage and do not understand.

The clatter only seems to insult the ears. And what is there to life if you cannot hear the lonely cry of the whippoorwill or the arguments of the frogs around a pond at

night? I am a Red man and do not understand.

The Indian prefers the soft sound of the wind darting over the face of a pond, and the smell of the wind itself, cleaned by a midday rain, or scented with the pinon pine.

Precious

The air is precious to us, for all things share the same breath — the beast, the tree, all people, they share the same breath.

The White man does not seem to notice the air he breathes. Like a man dying for many days, he is numb to the stench.

If we sell you our land, you must remember that the air is precious to us, that the air shares its spirit with all life it supports. The wind that gave our ancestors their first breath also received their last sigh.

And if we sell you our land, you must keep it apart and sacred, as a place where even the White man can go to taste the wind that is sweetened by the meadow's flowers.

One condition

So we will consider your offer to buy our land. If we decide to accept, I will make one condition: the White man must treat the beasts of this land like his brothers and sisters.

I am a savage and I do not understand any other way.

I have seen a thousand rotting buffaloes on the prairie, left by the White man who shot them from a passing train.

I am a savage and I do not understand how the smoking iron horse can be more important than the buffalo that we kill only to stay alive.

What are we without the beasts? If all the beasts were gone, we would die from a great loneliness of the spirit.

For whatever happens to the beasts, soon happens to us. All things are connected.

The ashes

You must teach your children that the ground beneath their feet is the ashes of your grandparents. So that they will respect the land, tell your children that the earth is rich with the lives of our kin.

Teach your children what we have taught our children, that the earth is our mother.

Whatever befalls the earth befalls the children of the earth. If men spit upon the ground, they spit upon themselves.

This we know: the earth does not belong to people; people belong to the earth. This we know.

All things are connected like the blood which unites one family. All things are connected. We do not inherit the earth from our grandparents: we borrow it for our grandchildren.

Whatever befalls the earth befalls the children of the earth. We did not weave the web of life: we are merely a strand in it. Whatever we do to the web we do to ourselves.

Even the White man, whose God walks and talks with him as friend to friend, cannot be exempt from the common destiny.

We may be brothers after all.

We shall see.

One thing we know, which the White man may one day discover — our God is the same God.

You may think now that you own God as you wish to own our land; but you cannot. Your God is the God of all people, and so compassion is equal for the Red man and the White.

This earth is precious to our God, and to harm the earth is to heap contempt on its Creator.

The Whites too shall pass; perhaps sooner than all other tribes. Contaminate your bed, and you will one night suffocate in your own waste.

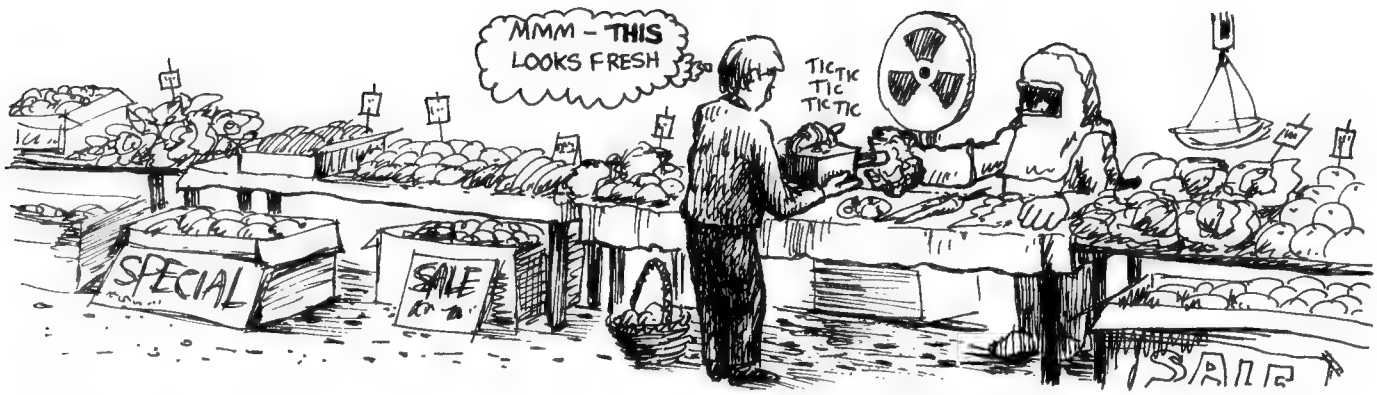
But in your perishing you will shine brightly, fired by the strength of a God who brought you to this land and for some special purpose gave you dominion over this land and over the Red man.

That destiny is a mystery to us, for we do not understand when the buffalo are all slaughtered, the wild horses are tamed, the secret corners of the forest heavy with scent of many men, and the view of the ripe hills blotted by talking wires.

Where is the thicket? Gone.

Where is the eagle? Gone.

The end of living and the beginning of survival.



The Australian Federal Government has recently legalised the irradiation of fruit, vegetables, poultry, cereals, herbs and spices and dried fruit.

The US Government's official report on food irradiation states that it causes tumours, kidney damage, life shortening and fewer offspring.

Irradiation exposes foods to gamma rays, x-rays or electron bombardment to kill insects, moulds and bacteria - including those that cause spoilage - as well as all other living cells. The food product is then sealed and requires no refrigeration.

Irradiated food holds potential danger because it destroys vitamins and minerals, and many of the other protective nutrients in food. Fertility, growth and digestibility in those who eat it are also affected by irradiation.

The argument in favour is that the gamma rays merely penetrate the food, killing bacteria and fungus without turning the food radioactive.

The meat industry in America has declared that steaks irradiated and kept in air-tight containers for more than a year without refrigeration remain 'fine and juicy'. A further 'advantage' for the food industry is that food irradiation delays ripening and prevents germination.

In the USA irradiation plants have had their licences suspended indefinitely for various nuclear violations including contaminating the environment with radiation.

Animal tests reveal that irradiated food can shorten life spans according to a report in the August 1972 issue of the journal *Here's Health.* Cornwell University researchers have found that eating irradiated sugar can produce the same genetic changes in humans as exposure to radiation itself.

Irradiated food is labelled 'picowaved', along with the simple circular symbol with a flower in the middle. The flower should, of course, be dead.

If food irradiation starts in Australia, large amounts of radioactive material will be moving across the country regularly. Why has the nuclear industry been allowed to establish itself in Australia? What does a nuclear-free South Pacific mean? As Chernobyl clearly demonstrated, nuclear accidents can and do occur. Food irradiation is worrying as much for its nuclear hazards as for its possible food hazards.

According to one writer, 17 important studies of animals fed irradiated fruits, vegetables and fish were rejected by the United States Food and Drug Administration. Of the remaining several hundred studies FDA scientists judged 99% to be inadequate to demonstrate safety.

Science journal has cautioned against consuming irradiated foods, stating, "Since most foods and all living cells contain sugar, long term consumption of irradiated food by humans may result in cell damage".

The World Health Organization has cautioned that food irradiation could be harmful to nutritional value and could develop resistance in food spoilage bacteria. The claimed advantages of the process, said the report, 'are not sufficient to warrant its indiscriminate use in all circumstances'.

Over 150 irradiaton plants are planned across Australia, according to recent statements on ABC radio by Mr Baden Cameron, an official from the Brisbane Market Trust. Mr Cameron intends to site Queensland's first irradiation plant next to the fruit and vegetable markets at Rocklea, Brisbane! Approval has been delayed a few months while the Australian Consumers' Association conducts investigations and reports to the Government. However, legislation allowing food irradiation in Queensland is now imminent.

Write to the politicians listed below - especially the Prime Minister.
Keep your letter very brief; it could be along the following lines, but in your own words.

-I am strongly oppposed to food irradiation.
-For health reasons, I believe that we are entitled to have our food in as natural a state as possible. I believe irradiation to be an extremely unnatural process.
-The safety of irradiation cannot be proved and there are already many respected experts who warn of potential danger.
-I am strongly opposed to having radioactive materials in a number of locations around Australia.
-If we must have food irradiation forced on us, then at the very least I demand that irradiated food is clearly labelled without exception.

The Hon R J Hawke MP, Prime Minister, Parliament House, CANBERRA, ACT, 2600.
Dr N Blewett, Fed. Minister for Health, House of Reps. CANBERRA ACT 2600.
The Hon B Unsworth, Premier of NSW, State Office Bldg, Phillip Street, SYDNEY, NSW, 2000.
Mr P Anderson, State Min for Health, 22nd Flr, McKell Bldg, Rawson Place, SYDNEY, NSW ,2000.

LAND LINES

LAND LINES are for people buying, selling, seeking or sharing houses and land. It is your responsibility to check all deals. We charge a rate of 24 cents per word (prepaid) for a listing of any desired length (the grid on the last page can be used for preparing your ad). All land lines must include your name and address (phone number is optional). Land lines for the June issue of Earth Garden should be in by mid-May.

ON VICTORIAN-NSW border. Two 40 acre bush blocks, very private, near National parks, State Forest, lakes and beaches. The nearest town is Eden. $21,000 each. Also 100 acre property on a small river $36,000. Write to 'private forest' PO Box C63, Clarence St, Sydney 2000, (047) 841020.

ROCKY HALL, near Eden. Nine acres with road and river frontage, tall gums, wombats and good soil. $15,000. Phone Vicki Vivian on (02) 818 4254 or (0649) 42165.

BINNAWAY, NSW — a large attractive property is now available owing to a forced matrimonial sale. The property totals some 1360 acres of which about 290 acres have been cleared. The annual rainfall is about 24 inches and an irrigation licence is held for a small area. This gently sloping property is on the banks of the Castlereagh River and Spring Creek flows through the property. There is also a spring which provides permanent natural water. The balance of the land is medium to dense scrubland timbered with box, pine and ironbark with some rocky outcrops towards the eastern end. A small basic timber home is also on the property which does have mains power supply. Price is $95,000 ono.

Please contact Micheal Heffernan of Heffernan & Co., Solicitors, 100 Philip Highway, Elizabeth South, SA 5112 or phone during office hours on (08) 255 5727.

TAYLORS ARM, NSW, near Macksville. 115 acres of north mountain face with 2 acres on valley floor. Spectacular views, power to house site above large dam, road overgrown to top. There is an old banana plantation with forest around and pockets of rainforest. Mostly frost free. Large area kikuyu, suit mixed farming or sub-tropical orchards $32,000. Ring Francis Vonk (065) 660208, or write c/- PO Crescent Head, 2440.

UNIQUE 1/10 share in 450 acres of mostly rainforest. 20' X 20' cottage, shed, building materials, creeks, wildlife, $37,000. Write to Marguerita Patrick, PO Box 407, Murwillumbah, NSW 2484.

KURANDA, tropical North Queensland, over 4 acres of rainforest, uncleared, power, telephone, bore water, bitumen access. Backs onto beautiful State forest. East 40 minute drive to Cairns. Price $35,000 ono. Phone Patsy Spelta (07) 300 4502 or write to 24 Bushwick St, The Gap, QLD 4061.

NORTHERN NSW. One-twentyfourth share in Community and Retreat Centre near Kyogle. 1000 acres of forest and pasture, permanent creeks and springs, approved development. $15,500 negotiable, carries 5 acre dwelling entitlement and share in community house and tractor. Contact Sue or Dave on (066) 243 885 a/hours.

SOUTH OF EVANS HEAD, NSW. One share ($8,000) and one share with buildings ($35,000) available in well-established multiple occupancy (co-operative). 196 forested hectares in coastal location south of Evan's Head. Please apply for details c/- Secretary, Korinderie Ridge Co-op, PO Box 42, Woodburn 2472.

STANTHORPE QLD. 20 acres partly cleared, permanent water, fenced, 30 fruit and nut trees — many bearing, Girraween National Park nearby, handcrafted cabin of pisé, stone and timber with slow combustion stove, wood heater, solar electricity, telephone etc. Birdlife abounds in peaceful surrounds atop The Great Divide — $30,000. Contact Ross Campbell on (066) 845 423, RMB Main Arm Rd, Durumble via Mullumbimby, NSW 2482.

ELANDS NSW. House and studio on Doyles River and 1/5 share in 250 acres 10 miles from Elands $12,000. Contact Greg Berry on (065) 853 941, 48 Cameron St, Wauchope, NSW 2446.

Young women are invited to experience Christian communal living at our rural property for one or two weeks during August 10-30 or October 5-25. Opportunity for learning meditation, communication, gardening, crafts etc. Food and accommodation free. Write to Sister Helen, Sisters of the Church (Anglican), Dondingalong via Kempsey 2440, or telephone (065) 669 244.

A TOTAL of forty shares at $12,800 each in a Council-approved Multiple Occupancy (over one third already sold).
Location : 15 kms west of Nimbin on the Kyogle — Murwillumbah Road.
Each share gives legal entitlement to approximately four to five acres as well as a share in over 100 acres of common land for environmentally sound recreational and agricultural purposes. There is a choice of flat land, high land and valleys, gentle slopes, with creeks and streams.
The Community House main structure has been completed, there are gravel roads, dams for water supply and swimming, a tractor and various implements for community use, and the local Rudolf Steiner School is located on adjoining land. Our aim is for a community of people who will respect this beautiful land as well as each other. If this appeals to you please write to: 'Lillifield', Lillian Rock, via Nimbin 2480, or telephone (066) 89 7224.

FAR NORTH COAST. Enjoy living on your own 10 acres in comfortable 4 BR home. There is plenty of water, a greenhouse, large working shed, fruit trees, good working equipment, a.g. swimming pool, 240 V generator, phone, and be surrounded by bush, plenty of wildlife, wetlands, heath and close to untouched beaches and river. 20 minutes to shops and school. We are a small community on 800 acres south of Woodburn with legal set up similar to strata title. Price reduced to $59,950. Phone Rosemary Zillig (066) 21 8939 or write to: 46 Ubrihien St, Lismore, NSW 2480.

HOUSE AND LAND on about 1 and 1/2 acres, 150 kilometres north of Brisbane. Air conditioner in lounge. Solar water heater (home built). Tank water and large bore. Electricity, large vegetable garden, bird aviary, fish pond, chook house and three section shed. Price $40,000. Contact Mrs D Pease, 34 Treva St, Beachmere QLD 4510, or phone (071) 968 410.

FOURTH SHARE in 120 acres, Roseberry Creek near Kyogle, NSW. 10 acres, road, caravan, homesite, dam. Borders two creeks and State Forest. 60% rainforest, $15,000. Phone (07) 800 3885.

MOOBALL, Northern NSW. Commercial herb farm plus large stone and timber home on five acres. Fully irrigated, large dam, good income, easy to operate. Regular customers, good access to markets. Frost free land with ocean and hinterland views, $175,000. Phone (066) 77 1512.

QUEANBEYAN (20 minutes from Canberra GPO). House block north facing, fenced two sides, freehold, many young fruit trees, berries, natives, vegetable garden, strawberries, large shed, suitable glasshouse. Passive solar house plans available, $33,500. Phone Tina (062) 49 2888, CCE, GPO Box 4, Canberra ACT 2601.

TAREE AREA — 587 acres 40% rainforest, balance open forest. Excellent soils, views, creeks, river, 10 kilometres from village of Comboyne $79,000 or four shares at $18,750. Phone Graham (065) 53 4028, or write to Graham Beston, Mt George Rd, Wingham, NSW 2429.

FARM—RETREAT in Nambucca Valley for sale. Hilly forests, permanent creek, flats. New three brm home with all facilities, 15 minutes from Bowraville. Selling because of child's ill health, $115,000. Phone Lee (065) 64 7678, or write to L Gilliard, Missabotti via Bowraville, NSW 2449.

WE'RE SEEKING a family with primary school children to rent our 3 br house on 25 acres, 1 and 1/2 hours south of Mackay, North Queensland. There is a milking cow, chooks, mature fruit trees, one-teacher school opposite, close to coast, organic vegetable garden. Also 200 mango trees. $55 per week. Will exchange part for caretaking trees. Further details : Mary and Byron McKavanagh, CMB Flaggy Rock, QLD 4741, phone (079) 50 2176.

LARGE three bedroom house on 150 acres one hour north of Bundaberg. Frontage to tidal river (fishing and crabs). Nominal rent in return for some handy work. For family with references preferably. Write with details to B Marinovic, 1 Sansey Ave, Mt Ousley, NSW 2519.

New Amendments To NSW Co-operation Act

These new amendments will concern communities and other co-ops incorporated as co-operatives in NSW. Such co-ops will have to take steps to forfeit the shares of 'inactive' members, but in some cases charging an annual levy will be sufficient to become or remain an active member and avoid share forfeiture.

It is therefore very important for existing members of co-ops (such as Co-ordination Co-op Ltd, PO Box 26, Nimbin, 2480) to contact their Secretary with their current address to receive details about these amendments as soon as possible.

access

Permaculture Designer's Course, near Noosa, Sunshine Coast, QLD, 5 to 18 July, 1987

This course will involve all aspects of permaculture design and principles in urban, rural and village situations. The course is held in an area of high permaculture activity and participants will be able to visit farms. Tutors are Max O Lindegger, Frances Lang and Robert Tap.
For further information write to: Permaculture Consultancy, 56 Isabella Ave, Nambour, Qld, 4560.

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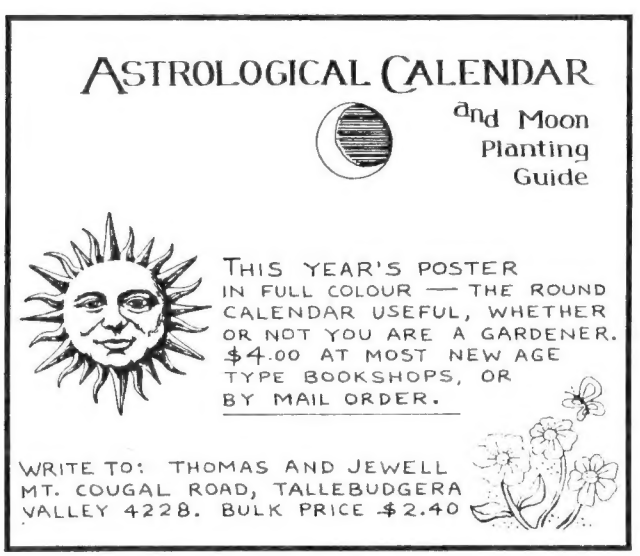
BODY BASICS — a complete range of hand-made bodycare products including soaps, body & bath oils, lotions etc. All are made to the highest standards of quality using pure ingredients and based on traditional natural recipes. No animals have suffered in their creation. Write or phone for information. Body Basics (Julie Jordon), PO Box 542, Paddington, NSW 2021. Phone (02) 335753.

GARDENING BOOKS GALORE — Every garden book you ever dreamed of. Send for the list to: Plant Parenthood Books, PO Box 6, Mulgoa 2750.

BIO-DYNAMICS, an advanced organic approach to farming and gardening. For more information send name, address and 36 cent stamp to:
ATEC, PO Box 110, Leura, NSW 2781.



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For plant food, seed raising and potting mix. Wonderworm Farm, 88 Hume Highway, Welby, 2575. Phone (048) 711 337.

WORK WANTED on a farm in northern NSW or Qld. Young couple eager to learn everything about farming life. You need help in or around the house? We work hard in exchange for food and maybe accommodation. We would like to start around May and could work for a short or long time. Please write to: W Burger, c/- GPO Sydney.

STRETCH SEWING MANUAL written by experienced dressmaking teacher. $3.40 posted. Contact: Jill Mitchell, 12 Mullacor Street, Ferny Grove, QLD, 4055.

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EG1: Move out . . . food co-ops . . . Kibbutz and Moshav . . . Montsalvat . . . herbs . . . Fred Robinson . . . bean sprouts . . . compost and mulch . . . comfrey . . . earthworms.

EG2: Start a garden . . . Neil Douglas . . . Keyline system . . . Kiewa farms . . . drying and storing food . . . hydroponics . . . recycling garbage . . . nutrition.

EG3: Herbs . . . compost . . . fast fertiliser . . . all about goats . . . mudbricks . . . domes . . . water wheel . . . bread . . . salads . . . pottery . . . spinning . . . vegies.

EG4: The honey bee . . . back to the land in Tassie . . . the transition . . . black sheep . . . tanning . . . candles . . . bread . . . donkeys . . . a wall-hanging.

EG5: The wind — windmills . . . windpumps . . . generators . . . raku pottery . . . Cinva ram . . . poultry . . . Hamburghs . . . moon planting . . . fallout shelter . . . vegan way.

EG6: Solar 1 — sun cults . . . solar cooker . . . sundials . . . Lost World . . . Clifton Pugh . . . concrete house . . . Shalom . . . Cajun cookin' . . . horses . . . spirit of Nimbin.

EG7: Solar 2 — hot water . . . Mudbrick techniques . . . Angora goats . . . make a leather bag and belt . . . mushrooms . . . natural dyes.

EG8: Gas power — methane digester . . . by truck to Tassie . . . cumbungi hats . . . inkle loom . . . candles and tapers . . . country cottages . . . A-frame . . . school gardens . . . sourdough.

EG9: LP gas . . . Mary's place . . . building with stone rubble (slipform) . . . macrobiotics . . . oats . . . ducks . . . rug frame . . . how to kill a pig.

EG10: Granite house . . . geese . . . chip heater . . . bamboo flutes . . . build beehives . . . Jarrah shingles . . . mudbricks . . . Bio-dynamics . . . seaweed . . . tandem . . . Index (EG1-10).

EG11: Water — hydraulic ram . . . waterwheels . . . okra . . . seed primer . . . heavy horses . . . tomatoes . . . soft technology . . . wine . . . hard cheese . . . start with hens.

EG12: Keeping food — drying . . . salting . . . bottling . . . storing . . . tahu . . . tropic delights . . . plant propagation . . . plans for a solar water heater . . . solar stills and cooker . . . Moora Moora.

EG13: OUT OF PRINT.

EG14: Self-sufficiency — gardens for all . . . Botobolar vineyard . . . Terania Creek . . . millet . . . Robinson Crusoe . . . Walden . . . The Nearings . . . stone building.

EG15: A Lytel Herbal — growing and using herbs . . . text and illustrations from the classic 16th C herbals . . . modern commentary . . . Index to EG15.

EG16: A Lytel Herbal (Part 2) — comfrey, lavender, wormwood, yarrow . . . poultry shed . . . peafowl . . . goats . . . basic beekeeping . . . rammed earth building . . . hydraulic ram.

EG17: Fencing . . . dry stone walls . . . make soap . . . nets . . . pole shelter . . . breeding black sheep . . . The Autonomous House . . . asparagus . . . Aeolian harp . . . ducks . . . Khaki Campbells.

EG18: Fruit garden . . . oranges . . . lemons . . . olives . . . nuts . . . tropical fruit . . . fodder trees . . . road building . . . wood fired kiln plans . . . Cinva-ram cottage . . . sunflowers . . . homebirth.

EG19: Wood heat — pot bellies . . . Jotul . . . cooking . . . making a quid . . . build a storage cellar . . . bushfires . . . stonefruit . . . macadamia nuts . . . binding your EGs . . . tree planting . . . budding.

EG20: Apples . . . pears . . . cordon and espalier . . . build a haybale pig house . . . pollen . . . rose hips . . . mudbrick flats . . . solar homes . . . gourds . . . preserve fence posts.

EG21: Womancraft — all articles by women . . . earthly arts . . . axewomanship . . . glove puppets . . . spinning . . . weaving . . . easy rugs . . . Sumatran house . . . old roses . . . Index (EG10-20).

EG22-23: Australian Access Sourcebook . . . 150 pages . . . Aborigines . . . organic growing . . . permaculture . . . earth building . . . wind . . . solar . . . water power . . . technology . . . water supply . . . access to groups, plans, books, tools.

EG24: Place — 24 new settlers write . . . Mare Carter . . . Ron Edwards . . . Neil Douglas . . . Gundaroo Store . . . Rainbow Region . . . Mt Oak . . . Moora Moora . . . Universal Brotherhood . . . bush ashram.

EG25: Australian Access Sourcebook (Part 2) — 130 pages . . . livestock . . . aquaculture . . . fencing . . . killing . . . tanning . . . food and nutrition . . . grain grinders . . . solar homes . . . methane . . . greenhouse . . . Dorothy Hall.

EG26: The earth-built kasbahs . . . owner built homes in stone . . . timber . . . mudbricks . . . a slab cottage . . . tree felling . . . solar electrics . . . acorns . . . compost dunny . . . quandong . . . pumpkin recipes.

EG27: 100 tropical food plants for Australia (part 1) . . . 16 legumes . . . winged bean . . . pigeon pea . . . lablab . . . cowpea . . . adzuki bean . . . blacksmithing . . . bluestone building . . . wok cooking.

EG28: Tropical food plants (part 2) . . . horse and buggy . . . packhorsing the Alps . . . black sheep . . . Merinos . . . bullocks . . . tamarillo . . . stringybark baskets . . . solar trike . . . persimmons.

EG41: Sahara . . . Timbuktu . . . Uganda . . . pack donkeys . . . horse float journey . . . mat-tents . . . build a S-rotor wind generator . . . damper . . . yeastless bread . . . food co-op accounts . . . real potatoes. . . Index, EG31-40.

EG42: Earth covered homes . . . Burra dugouts . . . slipform stone . . . the flood-defensive house . . . tomato tips . . . deep ecology . . . build a pigsty . . . EG reader survey . . . the Tuareg . . . Jean Pain's methods.

BACK ISSUE LIBRARY

All the back copies, from 1972 to 1986 (EG1 to EG52, except EG13). ☐ $90.00 posted. A survival kit of self-reliance, the 'big packet' (5 kg) has 3,100 pages of practical information on growing, building, energy, household economy, livestock, craft and tucker and tales from New Settlers all around Australia.

EG29: Mudbricks — the monastery at Stroud . . . Bob's bonza brickmaker . . . earth floors . . . curved walls . . . herb roof . . . cutting axe . . . low energy design . . . coconut mats . . . mangoes . . . tropical food plants (part 3).

EG30: Organic growing — compost heaps, pits, trenches, boxes, bins and barrels . . . no-dig . . . mulch carpets . . . semi-arid growing . . . preserving figs . . . tempeh . . . pasta . . . glass bottle windows.

EG31: Energy — make a hydraulic ram . . . second-hand windpump . . . mudbrick sequels . . . freezing food . . . zucchini glut . . . drying fruit . . . all about sprouts . . . hot box cooker . . . building a log house (part 1).

EG32: Year of the Tree — St Barbe Baker . . . tree tales . . . how a tree works . . . farm tree . . . native from seed . . . coppicing . . . Neil Douglas interview . . . cob building . . . log house (part 2).

EG33: Tenth anniversary issue . . . timber felling . . . lifting poles . . . post and beam design . . . log house (part 3) . . . parquet floors . . . backyard rabbits . . . goats . . . fowls . . . dry pit loo . . . portable henhouse.

EG34: China — communes . . . trees . . . fish farming . . . recycling human wastes . . . biogas . . . transport . . . travel notes . . . Chinese earth building (Ron Edwards) . . . rainforest . . . bread and jam.

EG35: Bees and trees — tribute to St Barbe Baker . . . backyard bees . . . mudbrick workshop . . . footings for earth walls . . . make a solar collector . . . magpies . . . earthworms . . . fodder trees.

EG36: Retrn to Nimbin . . . new settlers . . . a woman builder . . . pawpaw plantation . . . solar electric systems . . . potty garden . . . choughs . . . Peru . . . lavender sachet . . . biological building . . . farm structures.

EG37: HARD TIMES . . . making paper . . . newspaper fuel . . . rags to rugs . . . barter . . . slush lamps . . . sawdust stoves . . . Depression dodges . . . hand grain mills . . . 120 household hints.

EG38: Hard Times tucker . . . bread . . . soups . . . yoghurt . . . no-meat meals . . . beer . . . electric grain grinders . . . Gujarati village . . . mudbrick hermitage . . . earth walls and bushfires . . . Noel's island.

EG39: Build Peter Pedal's bike wheel wind generator . . . fire without matches . . . bushfire defensive house . . . avocado growing guide . . . rosehips . . . car battery power . . . farm energy . . . backyard food.

EG40: Communities . . . running a food co-op . . . three in a caravan . . . Scott Nearing's a good life . . . cyder in Tasmania . . . our self-built house . . . earth floors . . . the billy . . . olive oil . . . hares . . . cashew nuts.

EG43: Earth domes and vaults . . . rendering earth walls . . . quarry bush stone . . . bush shower . . . Peter Pedals' incinerator hot water and Pelton wheel . . . low voltage wiring . . . sheep . . . donkeys . . . horses.

EG44: Plug in the sun — solar electric systems . . . 12V to 240V . . . batteries . . . inverters . . . alternative washdays . . . how to make a pedal drier and 12V computers . . . solar panel booster . . . Solar Trek.

EG45: Waterworks — shifting water with sun, wind and water . . . solar electric pumps . . . gravity feed . . . hydraulic ram . . . Platapump . . . the cyclone-defensive house . . . bunya nuts . . . 12 V problems.

EG46: Windworks — wind generators . . . solar trackers . . . water turbines . . . 12 V bilge pump . . . herbal shampoo . . . compost loos . . . Tanzania . . . the algae pond . . . 12 V lights . . . Krypton lamps.

EG47: Practical projects . . . hanging a door . . . household plumbing . . . waterwheel pump . . . cycling Mongolia . . . the sun-pump . . . livestock . . . Aussie yurt . . . pigeon pea . . . bee tools . . . Peter's pedal machine.

EG48: Bob Rich's rammed earth primer . . . 1930s Dab, Pug and Pise, compost muncher . . . sushi and sashimi . . . Energy Pulse . . . buying an energy system . . . animal shelters . . . hand dug wells . . . ferrocement tank . . . growing firewood.

EG49: Chlorella culture . . . Solar Pack . . . Peter Pedals' TARDIS . . . just 6 volts . . . Poll Herefords . . . Babaco . . . Genteel frugality . . . Evening Primrose . . . home-made ladders . . . ferrocement roofs . . . building blues . . . immersion heaters . . . HARD TIMES hints . . . Soper with Chaucer.

EG50: Land ethics . . . Sustainable agriculture . . . Biodynamic, Keyline, Organic, Permaculture methods . . . healthy sweets . . . bamboo ladder . . . happy gardening . . . homegrown spuds . . . stone & mudbrick arches . . . Earthbricks . . . ferrocement tank . . . poultry pyramids . . . Energy Pulse.

EG51: Australian solar kit homes . . . self-sufficient house . . . solarium . . . energy updates . . . thin film solar panels . . . ram & sun pumps . . . two-faced stonework . . . river stone & mudbrick . . . earth building access . . . kero refrigeration . . . a shunt regulator . . . vegie basics . . . corn is king . . . 3-ply spinning . . . loo review .

EG52: Simple solar electric systems, 12V fridge, 12V record player, EG interviews, composting with earthworms, glazing skills, mudbrick pictures

In our last issue

EG 53: Horse drawn gypsy holidays . . . solar refrigeration . . . cottage gardens. . . organic scale control . . . Do-it-yourself land transfer . . .bartering . . . chaff cutters .

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WHO WILL?